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

William A. Sundstrom

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.[1] 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

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[1] 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.

recovered. Thus, the early series on work hours cannot be expected to pick up these fluctuations in actual hours worked.[2]

A dramatic illustration of the difference between scheduled and actual work hours is provided by the early years of the Great Depression. According to data collected by the National Industrial Conference Board, average *full-time* weekly hours in manufacturing firms fell from 49.6 in 1929 to 47.9 in 1932, whereas *actual* weekly hours fell from 48.3 to 34.8 (see Wolman 1938, p. 2, and Table Ba4592–4596). Because of this discrepancy, the various series on full-time hours are probably best interpreted as reflecting longer-run trends in scheduled work hours, rather than year-to-year fluctuations.

A second conceptual distinction is particularly important for the period since World War II. The hours statistics collected by the Bureau of Labor Statistics (BLS) Current Employment Statistics survey of establishments represent the average hours of work paid for by the employer. During the postwar period, the rise of paid time off in such forms as holidays, sick leave, and vacations has driven a wedge between reported hours paid for and actual hours worked. The estimated ratio of hours at work to hours paid provides a means of adjusting the standard BLS establishments series for this change (see Table Ba4647–4648). These ratios were calculated from a special BLS survey in order to improve measures of productivity. For example, for the entire nonfarm business sector, an estimate of average weekly hours worked is obtained by multiplying series Ba4576 and Ba4647.

A Brief User's Guide for the Work Hours Series

There are two major sources of information on hours of work before 1890: the Aldrich report and the Weeks report (see Table Ba4545–4551). The Weeks report was prepared by Joseph Weeks as part of the Census of 1880. The Aldrich report was prepared under the direction of the U.S. Commissioner of Labor, Carroll D. Wright, for the Senate Committee on Finance, chaired by Nelson W. Aldrich. Both reports are based on retrospective information from a cross section of manufacturing firms, and there are many doubts about their representativeness. A useful discussion of both reports and their limitations is provided by Clarence D. Long (1960, pp. 5–9).

Neither sample can be considered representative in its coverage by industry or region. Because of the retrospective nature of the samples, data from the earlier years in each survey come only from those surveyed establishments that had been in business continuously since those years. As one moves back in time, the samples tend to get smaller and smaller and, thus, probably less reliable. Still, the Weeks and Aldrich data seem to be in line with other sources on hours from the period. For example, using a much larger and more representative sample of establishments from the 1880 Census of Manufactures, Jeremy Atack and Fred Bateman (1992) found that a majority of workers in 1880 were scheduled to work exactly ten hours per day, which is consistent with the pattern reported by Aldrich and Weeks for that year. Both sources provide evidence on daily hours; to convert them to weekly hours, which are then roughly comparable with later series, one should multiply by 6, which was the typical number of working days per week in American manufacturing in the late nineteenth century.

Several annual hours series are available for 1890 and later. For the manufacturing sector as a whole, the most carefully constructed series are probably those of Albert Rees (series Ba4553) and Ethel Jones (series Ba4589), which together cover the period 1890–1957. Indeed, Jones uses Rees's numbers for the first part of her series. Her series makes use of a variety of sources to correct some problems in the standard BLS data (series Ba4580). Rees gives hours per day and Jones hours per week, but the Rees and Jones series can easily be linked as follows: for 1890–1899, multiply Rees's daily hours (series Ba4553) by days in operation per year (series Ba4552) and divide by 52.

To extend the manufacturing series forward in time from 1957, the user should append to Jones's series the BLS data in series Ba4580. Jones tried wherever possible to estimate hours actually worked, rather than hours paid for. Therefore, for comparability with the Jones series, the standard BLS hours series should be adjusted to hours worked as noted (by multiplying series Ba4580 and Ba4648). Piecing together these three components, one arrives at a reasonably consistent annual series of weekly hours in manufacturing for the entire period 1890–1996, which is exhibited and discussed in Figure Ba-O.

Data for some other sectors of the economy can also be constructed for a long run of years. For example, Jones provides hours for steam railroads and bituminous coal mining (series
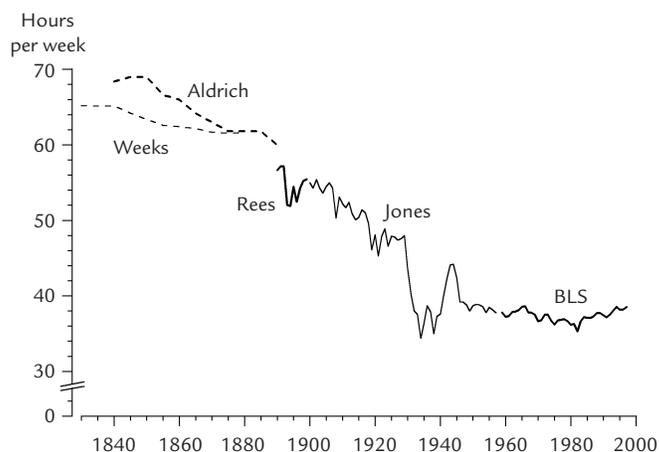
FIGURE Ba-O   Average weekly work hours – manufacturing: 1830–1997

Sources

Based on series Ba4545–4553, Ba4580, Ba4589, and Ba4648.

Documentation

1830–1880 (Weeks report): average daily hours were obtained by computing a weighted average of series Ba4546–4551, using the data values as the weights and the lower bounds of the hour ranges as the figures to be averaged; the resulting average for daily hours was converted to weekly hours by multiplying by 6.

1840–1890 (Aldrich report): daily hours in series Ba4545 were multiplied by 6 to obtain weekly hours.

1890–1899 (Rees): daily hours in series Ba4552 were multiplied by average days in operation in series Ba4553 to obtain annual hours, which were then divided by 52.

1900–1957 (Jones): series Ba4589. Note that for the period 1900–1914, Jones relies on Rees's data, and so the computations described for series Ba4552–4553 would yield the same results.

1959–1997 (U.S. Bureau of Labor Statistics): hours paid, series Ba4580, were converted to hours worked by multiplying them by the ratio in series Ba4648.

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[2] Series based at least in part on scheduled hours include those in Tables Ba4545–4574.

Ba4590–4591), which can be extended to the present day using series Ba4578 and Ba4584, respectively. Data collected by the National Industrial Conference Board provide hours by gender and skill level over the period 1914–1948 (Table Ba4592–4596).

For the period prior to 1940, obtaining a series for work hours in the economy as a whole is problematic, because annual statistics are generally lacking for several major sectors, such as trade and services. John Owen's series of weekly hours for private, non-agricultural workers (series Ba4575) is based on John Kendrick's estimates, which Kendrick (1961) built up from a large number of sources for different industries.[3] The series probably gives a good indication of the overall trend in hours during the first forty years of the twentieth century, but it is less reliable as an indication of year-to-year changes, as many of the underlying industry numbers are interpolated between a few benchmark years.

For the period since World War II, there are two major sources of annual data on work hours: the BLS survey of establishments or the Current Employment Statistics (CES) survey (Table Ba4576–4588), and the CPS, which surveys households (Tables Ba4597–4613). A key advantage of the CPS is that it permits one to examine hours levels and trends for different demographic groups (for example, by age, gender, or race).

The average weekly hours derived from the CPS are not comparable with those derived from the CES for several reasons. First, the CPS covers wage and salary workers (including domestics and other private household workers), self-employed persons, and unpaid workers in family-operated enterprises. The CES survey covers only production and nonsupervisory workers on the payrolls of private nonfarm establishments. Second, in the CPS survey, all persons with a job but not at work are excluded from the hours computations, whereas in the establishment survey, production or nonsupervisory employees on paid vacation, paid holiday, or paid sick leave are included and assigned the number of hours for which they were paid during the reporting period. Finally, the average hours in the CPS are the average hours per worker on all jobs held, whereas the average hours in the CES are the average hours per job. Thus, workers who hold multiple jobs ("moonlighting") have their total hours on all jobs combined counted in the CPS and their hours on each separate job counted separately in the CES.

Given these differences, it is hardly surprising that the CES and CPS estimates of weekly hours differ. What is perhaps less expected is that the two series have diverged substantially during the 1970s and 1980s. In 1966, the average workweek reported by the CES was about thirty-seven hours long, compared with about forty hours according to the CPS. By 1990, CES hours had fallen to just over 32, whereas CPS hours were just over 39. In other words, the gap between the average hours derived from these two sources had widened considerably (see also Figure Ba-P).

It can be shown that this increasing discrepancy is not merely the product of such technical differences between the sources as industry coverage and treatment of moonlighting.[4] Rather, a convincing case can be made that the average weekly hours derived from the CPS are biased upward because of an apparent tendency for individuals to overestimate their hours of work, and that this bias has grown. An independent source of information is time diary
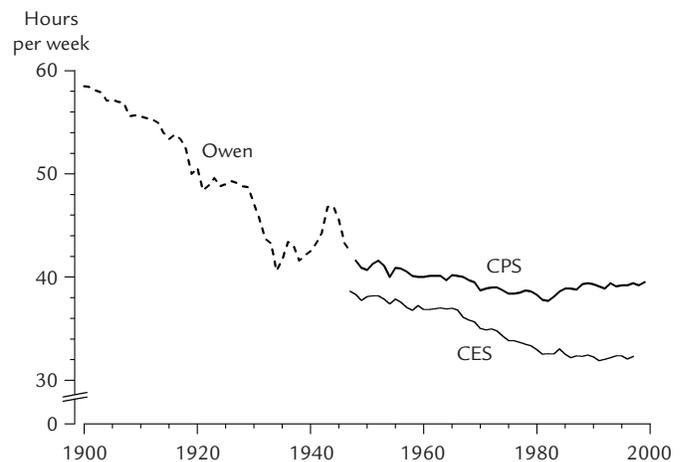
FIGURE Ba-P   Average weekly work hours – private nonagricultural workers: 1900–1997

Sources
Based on series Ba4575–4576, Ba4597, and Ba4647–4648.

Documentation
1900–1947 (Owen): series Ba4575.
    1948–1999 (Current Population Survey): series Ba4597.
    1947–1997 (Current Employment Statistics): hours paid, series Ba4576, were converted to hours worked by multiplying them by the ratio in series Ba4647. Note that series Ba4647 was extrapolated back to 1947 by using the rate of change for 1959–1966 found in the manufacturing ratio, series Ba4648.

studies, in which respondents are asked to assign an activity to each minute of a twenty-four-hour period (see Table Ba4641–4646). These studies confirm that in 1985, individuals overestimated their work hours when responding to CPS-type questions, and that the bias was probably increasing over the period 1965–1985 (Robinson and Bostrom 1994). Although this conclusion remains controversial, the CPS hours series should be treated with skepticism.

Another dimension of work time is the distribution of labor over the year. One simple summary measure is collected each March by the CPS: namely, how many weeks the respondent worked during the preceding year. Table Ba4614–4625 gives the number of workers within certain ranges of weeks worked, by gender and part-time status. Respondents are instructed to count the number of weeks during which they worked any number of hours, or received paid time off. Thus, the CPS measure of weeks worked includes paid time off for sick leave, vacations, and so forth.

For individuals who have a job but happen not to have worked during the CPS survey's reference week, the CPS asks them why they were not at work during that week: possible reasons include paid or unpaid leave for vacation, illness, bad weather, labor disputes, and so forth. Table Ba4649–4655 shows the number of employed workers who were absent from their jobs within these various categories of reasons. This table does not provide a complete picture of work absences, because workers who worked part of the week and were absent part of the week are counted as having been at work.

Trends and Cycles in Work Hours

The average American manufacturing worker in the mid to late nineteenth century worked between sixty and seventy hours per week. By the 1990s, weekly work hours in manufacturing had

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[3] For the period after 1940, Owen's series is derived from decennial census and Current Population Survey data, and is restricted to nonstudent male workers.
[4] A useful discussion of the discrepancy between CPS and CES work hours can be found in Abraham, Spletzer, and Stewart (1998).

fallen to about forty, and considerably lower in the average non-manufacturing industry. This decline occurred at an uneven pace. Figures Ba-O and Ba-P illustrate the long-term trends in weekly hours for manufacturing and all private nonagricultural workers, respectively.

During the second half of the nineteenth century, weekly hours in manufacturing trended downward – quite gradually (about one hour per decade) if one uses the estimates of the Weeks report, and more sharply (about two hours per decade) according to the Aldrich numbers. The pace of decline clearly accelerated during the early twentieth century, with a sharp dip following World War I and an especially large reduction during the Great Depression. According to Ethel Jones's figures, which are probably the most carefully prepared for the first half of the century, hours in manufacturing collapsed from 48 to 34 between 1929 and 1934. Weekly hours spiked nearly to pre-Depression levels during World War II, and then fell back to about 40 after the war. Overall, weekly hours fell on average by about 3.4 hours per decade between 1890 and 1950.

The postwar period shows a marked deceleration in the decline of work hours. Indeed, Figure Ba-O shows that weekly hours in manufacturing establishments fell only slightly between 1950 and 1980, and by the mid-1990s had returned to their 1950 level. For all private, nonfarm workers, shown in Figure Ba-P, the two major data sources tell dramatically different stories. According to the CPS survey, hours declined gradually between 1950 and 1980 and then increased a little thereafter. In contrast, the CES figures indicate that hours for all sectors declined much more significantly, albeit at only about half the rate of decline of the first half of the century. As noted previously, the CPS hours may be biased upward.

Why have work hours declined so much since the nineteenth century, and what accounts for the varying rate of decline? Perhaps the most obvious candidate for the overall trend is rising per capita income. According to the standard economic theory of labor supply, as workers' incomes rise, they may use some of this increased income to "buy back" increased leisure time in the form of shorter work hours. If workers tend to reduce their work hours in response to an increase in the real hourly wage, they exhibit what is known as a backward-bending labor supply curve. Indeed, the broad trend toward higher wages and shorter hours over the past 150 years can be taken as confirmation of the existence of backward-bending labor supply for most workers.

Of course, wages and incomes are not the only factors affecting work hours historically, and wage movements alone cannot account for the uneven timing of changes in hours. Other factors that have been cited by economists and historians include the impact of the business cycle, organized labor, government regulation of hours and other aspects of the employment relationship, and cultural changes affecting the value of leisure.

Weekly hours have tended to be procyclical – that is, hours move with the state of the economy over the business cycle. Examining the series for manufacturing in Figure Ba-O, one observes significant dips in hours during the recession years of the early 1890s, 1908, 1921, and, of course, the Great Depression of the 1930s. Evidently, employers cut hours during recessions – a practice known historically as worksharing – as an alternative to adjusting labor input through layoffs alone. The Owen series for all nonagricultural industries, shown in Figure Ba-P, is not as volatile as the manufacturing series, but it shows the same procyclical behavior. Although hours have continued to move with the business cycle during the post-Depression period, the importance of worksharing

has declined relative to employment adjustment (see Bernanke and Powell 1986).

Unions and government intervention have also played a role in historical changes in work hours. During the nineteenth century, the eight-hour day was a potent rallying cry of the early labor movement. Strikes and union victories no doubt succeeded in reducing hours in certain industries and locations; still, hours declined in nonunion as well as heavily unionized sectors. By the early twentieth century, when the trend toward a shorter workweek accelerated, the demand for shorter hours was apparently no longer a top priority of the national unions (see Cahill 1932; Whaples 1990).

Legal restrictions on work hours directly affected only a small minority of American workers prior to the New Deal. With the National Industrial Recovery Act (NIRA) of 1933 and the Fair Labor Standards Act (FLSA) of 1938, the federal government began to regulate the hours of a large number of American workers. Although hours restrictions may help to explain why weekly hours have generally remained below forty during the postwar years, many view the anomaly of the postwar period to be not how low work hours have been but their failure to fall even further.

According to the historian Benjamin Hunnicutt (1988), both organized labor and the federal government abandoned the movement toward shorter work hours during the Great Depression. In part, this change reflected the rise of mass consumer culture – an underlying shift in Americans' cultural values toward consumption of purchased goods and services and away from leisure time. In addition, from the experience of the Depression, there emerged a political consensus favoring economic policies that promoted full employment at full-time hours, in place of the earlier emphasis on worksharing during economic bad times. During the postwar period, calls for shortening the workweek have garnered decidedly less political or popular support than in the past.

The Hunnicutt story meshes nicely with the evidence of the declining historical importance of worksharing, but there are other factors that could help account for the slowdown in the decline of hours and the reduced reliance on hours reduction over the business cycle. In particular, the rise of employee benefits – some of them legally mandated – has created increasing *quasi-fixed* employment costs during the postwar period. Quasi-fixed employment costs are per-worker costs that do not vary directly with how many hours the worker puts in on the job. Employer-provided medical insurance is an example of such a cost. The existence of quasi-fixed employment costs creates an incentive for employers to hire fewer workers at longer hours, and to vary labor input over the business cycle through employment variations rather than worksharing.

Finally, the slowing pace of the decline in hours could also reflect the declining relative value of leisure time to workers as they gained more of it over the past century. In the late nineteenth century, workers may have been more likely to sacrifice potential earnings for more leisure at a time when work hours were much longer and leisure relatively scarce. This trade-off looks less attractive to workers today. Interesting evidence consistent with this hypothesis is provided by Dora Costa. She shows that in the 1890s, the workers with the highest hourly wages tended to work the shortest hours. By the 1990s, this pattern had reversed, with higher-paid workers tending to put in longer hours (Costa 2000). These are precisely the patterns one would expect to observe if workers typically used wage increases to "purchase" more leisure in the nineteenth century but used them to purchase consumption goods in recent times.
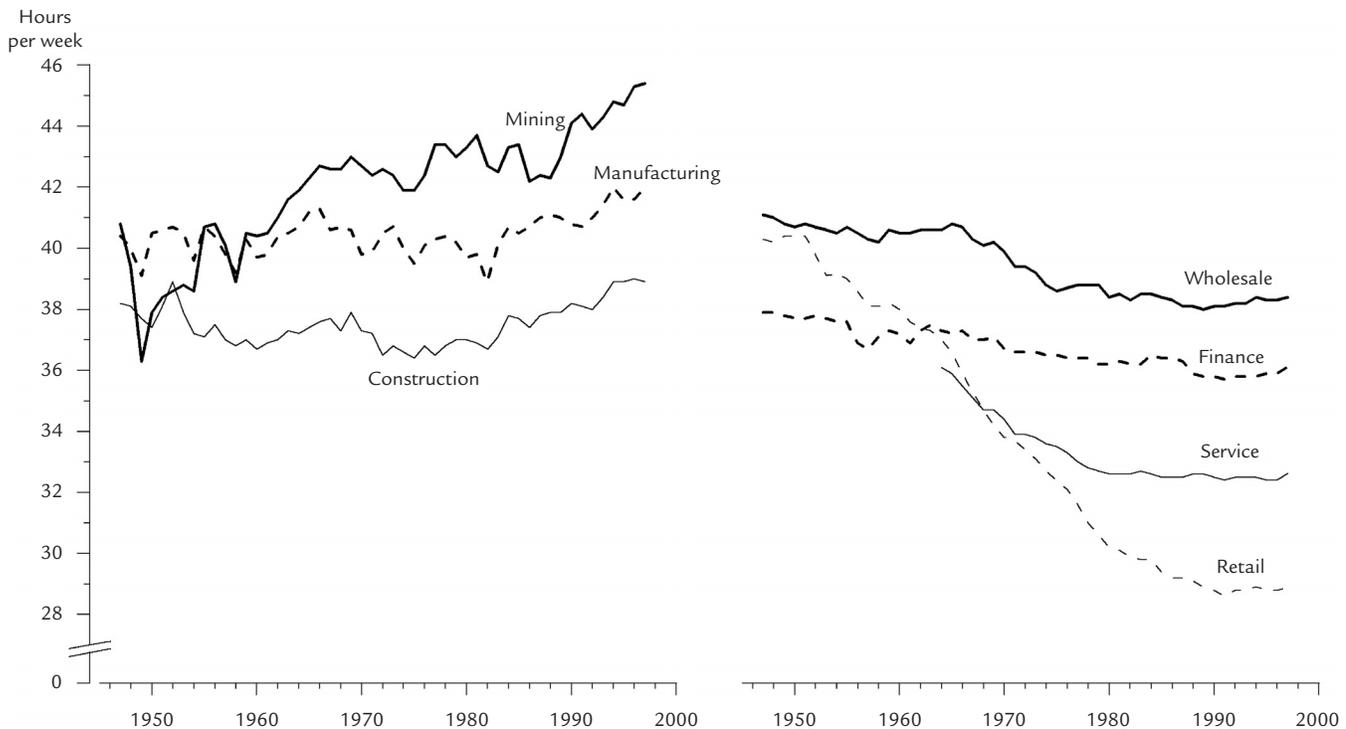
FIGURE Ba-Q   Average weekly work hours – selected industries: 1947–1997

Sources
Series Ba4577, Ba4579–4580, and Ba4585–4588.

Variation in Work Hours by Industry and Worker Characteristics

In addition to the trends and cycles over time, hours of work vary in cross section by industry and demographic group. The most detailed information on this variation is available for the postwar period. Figure Ba-Q, for example, plots average weekly hours since 1950 from the CES establishments survey for selected broad industry groups. The plot reveals substantial divergence across industries over the postwar decades.[5] In 1950, the workweek in all these industry groups was between 37 and 41 hours. By the 1990s, the average workweek for a job in retail trade had fallen to less than 30 hours, whereas hours in manufacturing had crept upward to about 42.[6]

These industry-specific trends help explain why hours in manufacturing have remained quite stagnant during the second half of the twentieth century, although hours for the entire private non-farm economy have fallen substantially. First, several of the important nonmanufacturing sectors have experienced diminishing workweeks. Second, the employment share of manufacturing has fallen over the same period, giving greater weight in the overall average to some of the industries with shorter workweeks. Why work hours have fallen in some industries and not in others is less

clear, but it is undoubtedly related in part to the changing demographic composition of some of the industries (such as the entry of more married women into the paid workforce) and perhaps to institutional differences (such as unionization) between them.

Work hours vary by worker demographic group as well. Among men and women who have jobs outside the home, men typically work longer hours than women, and the gender gap in weekly hours has changed little since the 1950s: according to the CPS statistics in Table Ba4597–4607, the workweek of the average male worker has exceeded that of the average female worker by six to seven hours throughout the period covered. Of course, the labor force participation rate of women increased substantially during this period. Furthermore, those women who reported working were working more weeks per year. This can be seen in Figure Ba-R, which plots the percentage of male and female workers who reported being year-round, full-time workers. Evidently, the feminization of the paid workforce since World War II has involved increases in the proportion of women working outside the home and in the regularity of women's paid work over the year, but not increases in working women's weekly hours at paid employment relative to men's.

Turnover and Job Duration

The length of time a worker stays with a given employer provides important information about the nature of the employment relationship that is not captured by wages and hours. Job duration is in part an indicator of the quality of the match between an employer and employee and can be expected to vary with the characteristics of both workers (supply-side factors) and employers (demand-side factors). On the supply side, workers with short-term commitments to the labor market are likely to have shorter job durations. An

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[5] The pattern of divergence is apparent across all industries, not just across the ones shown here.

[6] It should be remembered that these figures do not include the self-employed. The hours of small shopkeepers, not captured here, are presumably longer. It is interesting to note that during the nineteenth century, workers in trade and services probably had the longest workweek of any industry, according to the estimates of Kendrick (1961, p. 310). This may, presumably, have reflected the work hours of self-employed merchants.
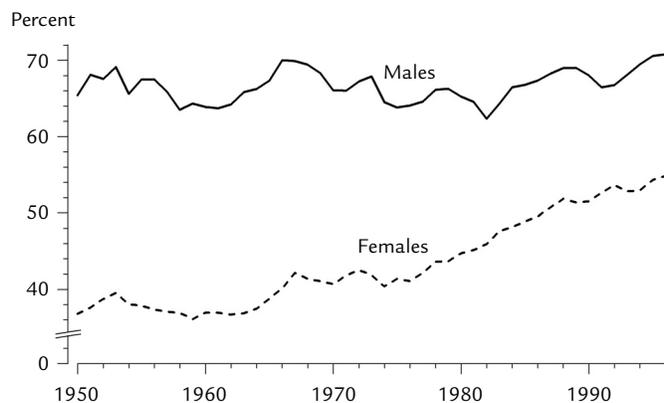
Percent

FIGURE Ba-R   Percentage of workers working full-time year-round, by sex: 1950–1996

Sources

Table Ba4614–4625. Males: series Ba4614 as a percentage of the sum of series Ba4614–4619. Females: computed analogously.

Per 100

FIGURE Ba-S   Monthly turnover rates in manufacturing – separations, quits, and layoffs per 100 workers: 1910–1981

Sources

Series Ba4684–4686.

example is immigrant workers who plan to return soon to their home country. On the demand side, employers may adopt strategies, such as fringe benefits or promotion plans, designed to increase the attachment of its workforce, perhaps to increase loyalty or hold down recruitment and training costs. Training costs may, in turn, be a reflection of the nature of the production technology. Of course, job duration is also affected by the exigencies of the business cycle: involuntary layoffs increase during cyclical downturns.

One source of quantitative information on workers' attachment to their employers is the rate of labor turnover, measured as the rate at which workers leave their current employer (separation rate) or are hired by a new employer (accession rate). Table Ba4682–4686 provides the available turnover series for the period 1910–1981, based on surveys of manufacturing employers. The separation rate is basically defined as the number of employees who left their job (employer) during a particular month, divided by the average total number of workers employed during that month; the accession rate is defined similarly.[7] For most of the years, the separation rate is decomposed into separations due to voluntary quits, due to layoffs, and due to other causes (such as disciplinary dismissals).

A plot of the separation rate and its quit and layoff components – shown in Figure Ba-S – reveals considerable change over time. Separation rates were very high before the mid-1920s and also climbed dramatically during World War II. Not surprisingly, quit rates and layoff rates tend to move in opposite directions over the business cycle: during recessions, workers are reluctant to quit their jobs, but layoffs escalate; during boom periods, when labor markets are tight, layoffs decline while quits rise.

Turnover rates provide an incomplete picture of employer–employee attachment, because movements in separations and accessions tend to be dominated by those workers and employers with the least attachment and the greatest sensitivity to the business cycle. It is quite possible that even during a period of very high labor turnover, most workers hold onto their jobs, while turnover increases dramatically for the more "footloose" workers and employers.[8]
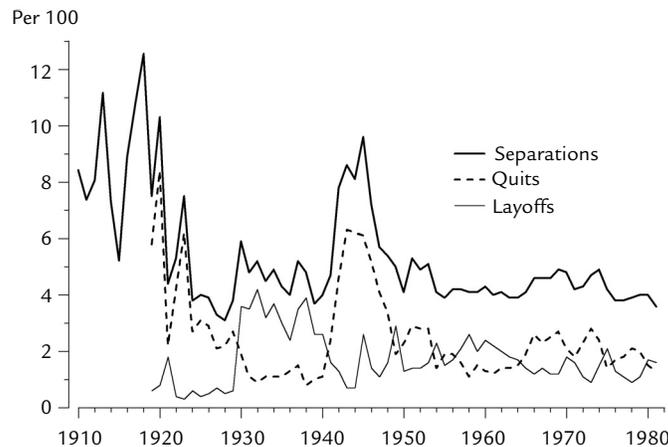
To obtain a more complete picture, it is therefore important to examine data on the actual distribution of job durations, or the length of time each worker has been with her or his current employer. This measure captures the duration of job spells that have not yet been completed. In this sense, observed job duration underestimates how long a worker will ultimately be with her or his current employer. Job duration data come from questions asked intermittently by the Current Population Survey. There are various ways of summarizing the distribution of job durations. Three are included here: Table Ba4656–4667 provides the median duration; Table Ba4668–4675 gives the percentage of workers who had been working for their current employer for a year or less (very short jobs); and Table Ba4676–4681 gives the percentage with job durations of twenty years or more (very long jobs).

Scattered historical evidence on job duration during the late nineteenth and early twentieth centuries suggests that jobs tended to be shorter than they have been during the period since World War II, which is consistent with the evidence of high turnover rates. That jobs were shorter during earlier periods has been interpreted by some historians as evidence that "lifetime jobs" and strong employer–employee attachments are a product of the twentieth century, perhaps arising with the advent of modern personnel management practices. However, jobs of long duration were not uncommon even in the late nineteenth century, and so some dispute remains about the extent and nature of changes in the employment relationship.[9]

The evidence on job duration also sheds some light on concerns about the potential decline in job security during the 1980s and 1990s. Median job duration remained fairly stable for men between the 1960s and the mid-1990s: clearly, there is little evidence of an overall decline in job attachment for men during the last two decades of the twentieth century.[10] There is, however, a noticeable decline in men's median job tenure between 1993 and 1996. Among

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[7] The precise calculation varies somewhat over the length of the series.

[8] This heterogeneity and its implications for interpreting turnover statistics are discussed in Woytinsky (1942).

[9] See Carter and Savoca (1990), Jacoby and Sharma (1992), and Owen (1995) for discussions of some of these issues.

[10] Careful studies of trends in job tenure during the late twentieth century can be found in Neumark (2000).

women, median job tenure has risen gradually over most of the period covered. In particular, the percentage of women with jobs of long duration (twenty years or more) has risen sharply since the late 1980s, a change that may reflect the increased regularity of married women's attachment to the labor force, as well as changes in women's occupational status.

Work-Related Injuries

Work-related injuries or illnesses are clearly another nonpecuniary aspect of work of considerable concern to workers. The risk of workplace injuries and fatalities gave rise to demands for government-sponsored workers' compensation programs during the early twentieth century, and they were implemented in a number of states. Even prior to the adoption of such programs, workers in risky occupations were often paid a compensating wage differential in contrast to workers of comparable skill in safer jobs.[11]

Work injuries are measured in terms of their frequency, either per worker or per worker-hour. Historical series for various industries are provided for the period before 1971 in Table Ba4742–4749 and after 1971 in Table Ba4750–4767. Unfortunately, major changes in the way work injury data were collected and analyzed make these two data sets largely noncomparable. Trends within each period, however, are suggestive. The period 1930–1960 witnessed a significant decline in injury rates in manufacturing and mining, particularly the latter. Injury rates appear to level off after 1960, and for the period since 1972, occupational injury rates have shown little overall trend. Not surprisingly, occupational injury and illness rates vary considerably across industries.

Employee Benefits

Fringe benefits became an important part of total worker compensation during the postwar period, but they are seldom counted in conventional wage and earnings statistics. The statistics on employee benefits included here come from two different Bureau of Labor Statistics programs, both of which survey establishments (employers). Information on the costs to employers of providing various benefits has been collected as part of the Employment Cost Index (ECI) and its predecessors, going back to 1959 (see Tables Ba4687–4702). Data on the incidence and provisions of selected employee benefits have been collected since 1979 under the Bureau of Labor Statistics Employee Benefits Survey (EBS; see Table Ba4712–4725).

The series in Tables Ba4687–4702 show the percentage of total employee compensation that was in the form of wages and salaries and various nonwage benefits, for manufacturing and all private-sector workers. These series provide a good picture of the overall economic importance of benefits over the past forty years. During the period covered, benefits have become an increasingly large fraction of total compensation, rising from about 19 percent in 1966 to 29 percent at their peak in 1994 (series Ba4696). This increase is largely accounted for by the rise in two components of benefit costs: insurance, which includes private medical insurance, and legally required benefits, which include employer contribu-

tions to Social Security, Medicare, and other mandated insurance programs.

The series for retirement benefits in these tables capture only employer contributions to private retirement plans. Another way of looking at retirement benefits is to combine the costs of employer contributions to both private plans and Social Security. Between 1977 and 1998, the cost of the Social Security tax to employers rose from 3.7 percent of total compensation to 4.7 percent, but contributions to private retirement plans fell from 4.3 percent to 3.8 percent of compensation. Thus overall, employer contributions to retirement plans on the whole were fairly stable, rising from 8.0 to 8.5 percent of total compensation (see Wiatrowski 1999, Table 5).

The employment-cost–based measures in Tables Ba4687–4702 do not provide information on how many workers are covered by different types of benefits. For this information, one can turn to the series from the EBS, shown in Table Ba4712–4725. Until 1987, this survey was restricted to "medium and large" private business establishments, and only the series for these establishments are included here.[12]

Before 1988, the industrial coverage of the EBS was incomplete (most service industries were excluded). After 1988, the survey becomes much more representative of the overall industrial composition of the private sector. Because of such changes in coverage, the series is not fully consistent over time, and trends over the approximately two decades covered by the EBS should be treated with caution. For example, between 1980 and 1997, the percentage of employees in surveyed establishments with defined benefit pensions fell from 84 to 50, and the percentage with medical benefits fell from 97 percent to 76 percent. In both cases, fairly large downward jumps in the series occur between 1986 and 1988, precisely when important changes in survey coverage were occurring. However, it is also the case that the downward trends in both series have continued since 1988, which can be taken as evidence that the trends overall are not merely the spurious effect of sample composition.

The case of medical coverage highlights the difference between looking at benefits in terms of employer compensation costs and in terms of incidence (employee coverage). According to series Ba4699, the cost of insurance benefits, of which medical insurance is the major component, rose dramatically as a percentage of total compensation between 1977 and 1994. During roughly the same period, the proportion of employees at medium and large establishments who had health benefits fell from nearly universal coverage to about three quarters (series Ba4714). A reasonable conclusion would be that the total costs of health benefits to employers rose as increases in medical insurance premiums during this period more than compensated for the declining percentage of the workforce covered.

Size of Workplace

The rise of the large business corporation is one of the central themes of U.S. economic history (Chandler 1977). One dimension of the scale of business enterprise is the impact of size on the nature of the employment relationship. Over the course of the twentieth

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[11] For a summary of work by economic historians on workplace accidents and insurance, see Fishback (1998), pp. 734–40.

[12] Results for the recent surveys of smaller establishments and state and local government can be obtained from the BLS Web site.

century, that relationship tended to become more bureaucratic and subject to direct managerial control, as large firms created so-called internal labor markets (Jacoby 1985). In the late twentieth century, economists have found that large employers differ from smaller ones in a variety of ways. For example, controlling for worker characteristics, large firms tend to pay higher wages.

Historical series on the size distribution of the workplace are presented in Tables Ba4703–4711. The data come from the U.S. Census Bureau. These tables show the percentage of employees working in establishments of various sizes. An establishment is defined as a single physical location where business is conducted by a company. In manufacturing, for example, an establishment is a plant or production facility; in retailing, it is a store. Because a given business firm may operate at more than one location, average establishment size is typically smaller than average firm size. A large retail chain, for example, may own many small stores and employ thousands of workers, yet each establishment (store) may employ only a handful. In spite of this limitation, establishment size is important, as it is a measure of how many employees interact and are supervised at a given place of work.

For manufacturing, a consistent series of establishment size can be constructed from the Census of Manufactures beginning in 1904. Examination of Table Ba4703–4705 shows the remarkable constancy of establishment size in manufacturing during the twentieth century. As early as 1904, more than 60 percent of man-

ufacturing employees worked in establishments with at least 100 employees. This figure rose to about 70 percent by 1919, and remained near this level through 1997. An alternative way of interpreting the same information is to note that rather small manufacturing facilities have held their own over the century, and since the late 1960s have actually increased in prominence (Granovetter 1984).

Consistent series on establishment size in manufacturing during the nineteenth century are harder to come by, but the available evidence suggests that increases in scale were substantial during the second half of the century (O'Brien 1988). In the aggregate, then, the economies of scale in production that accompanied the factory system and mechanization had largely been achieved by the turn of the century. Changes in the nature of the employment relationship in industry since then, by implication, cannot be attributed to the imperatives of growing workplaces, because establishment size simply has not changed much for the typical worker. This is not to rule out the possibility, however, that scale continued to increase at the level of the firm as a whole.

In trade and services, for which there are consistent series beginning in 1939, workplaces have tended to be much smaller, but the trend has been one of growth in size. The left panel of Figure Ba-T plots the proportion of workers in small establishments (fewer than 20 employees) for retail, wholesale, services, and manufacturing. The steady decline in the importance of small
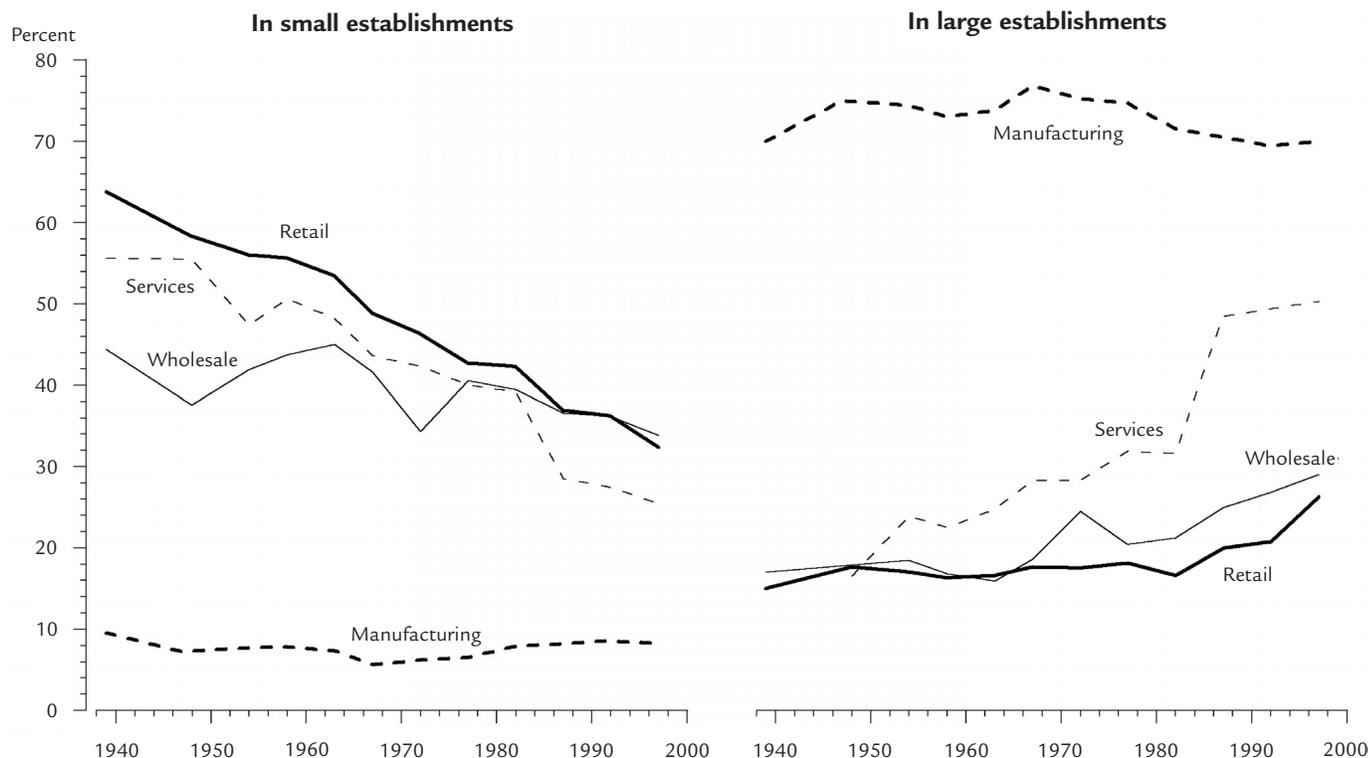
FIGURE Ba-T Percentage of manufacturing, retail, wholesale, and service employees working in small and large establishments: 1939–1997

Sources
Small establishments: series Ba4703, Ba4706, Ba4708, and Ba4710. Large establishments: computed as 100 percent minus series Ba4704, Ba4707, Ba4709, and Ba4711.

Documentation
Small establishments are those with fewer than 20 employees. Large establishments are those with at least 100 employees.

retailers and service establishments over the entire sixty years is evident. The right panel of Figure Ba-T does the same for the proportion of workers in large establishments (100 or more employees). Such establishments remain unusual in retail and wholesale trade, but there has been a notable increase in their share of employment since the 1970s.

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LABOR UNIONS

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Labor unions are an important institution in U.S. labor markets today. Nearly 16.5 million workers, or 13.9 percent of all wage and salary workers, are members of unions, and more than 18 million, or 15.3 percent of workers, are represented by unions. Although the share of union workers in the economy has fallen from its peak in 1948, unions still affect almost every aspect of the employment relationship, and the presence of unions has effects on employment contracts for nonunionized as well as for unionized workers (Freeman and Medoff 1984). The tables presented here document changes in the size and character of unionization in the U.S. labor force since the beginnings of the modern labor movement in the 1880s, along with measures of selected effects of unionization. These include the impact of unionization on wages, the incidence of strikes, and public attitudes toward organized labor.

Historical Overview of Labor Organizing

The first reliable measures of union membership date from 1880, near the beginning of what may be called the modern era of organized labor. Although union progress was halting and irregular during most of the nineteenth century, there was a long history of organized labor prior to the 1880s. Skilled workers in a number of urban crafts formed organizations to pursue their interests as early as the 1780s. In addition to seeking higher wages and shorter hours, these organizations often provided fraternal benefits for sickness and burial. Among the challenges confronting these early labor organizations was their ambiguous legal status. Until the 1842 case of *Commonwealth v. Hunt*, in which Massachusetts Chief Justice Lemuel Shaw for the first time recognized the legality of unions, state courts had generally interpreted strikes as illegal conspiracies. Even after this ruling, however, employers continued to use the conspiracy argument with some success, and the passage of legislation repealing the conspiracy doctrine emerged as an important priority of organized labor in the late nineteenth century. Despite growing legislative support for labor in the late nineteenth century, striking workers continued to face the threat of injunctions issued to prevent injury to property.[1]

During the first half of the nineteenth century, the number of local craft unions proliferated, but most labor organizations remained transitory – forming during economic upswings and collapsing during business downturns. Growth in the number of labor organizations led to increased efforts at federation. In 1827, unions representing an array of different crafts in Philadelphia formed a trade council to pursue issues of common concern. Similar organizations soon appeared in most other major cities, and in 1834, the first national federation of labor organizations, the National Trades Union (NTU), was established in New York. This organization proved short-lived, however, vanishing, like many other labor organizations, in the depression that followed the panic of 1837.

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[1] See Currie and Ferrie (2000) for a summary of the evolution of nineteenth-century labor law and for a careful elaboration of the extent of heterogeneity of state laws relating to labor organizations in the late nineteenth century.