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THE LABOR FORCE IN THE NINETEENTH CENTURY

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ABSTRACT

This paper surveys recent research on the labor force in the nineteenth century. I examine trends in the aggregate size, demographic, occupational and industrial composition of the labor force; short-run and long-run movements in nominal and real wages; hours of work; the development of the factory system; the growth of unions; and government regulation of labor markets, specifically protectionist legislation. Although my survey is deliberately broad in scope, there is an underlying emphasis on those aspects of change that had a direct bearing on the evolution of the labor force in the twentieth century. In keeping with this theme, the paper concludes with a brief comparison of labor markets at the turn of the century with labor markets today.

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American economic growth in the nineteenth century was the wonder of the Western world. Over the course of the century the growth rate of national product averaged 3.5 to 4.0 percent per year. Compared with the twentieth century, nineteenth century American growth owed much more to increases in factor supplies than technological change. Of the three major productive inputs -- labor, natural resources, and capital -- increases in the supply of labor account for the largest fraction of aggregate growth in the nineteenth century: twice as important as capital accumulation, five times as important as additions to the stock of natural resources. If it is true that labor makes a nation's wealth, few better examples could be found than the American economy of the nineteenth century.

This chapter surveys the major developments in the American labor force in the nineteenth century: its size and composition; rewards to labor; and labor relations, within firms and with the government. Although the scope of the chapter is deliberately wide, there is an underlying emphasis on those aspects of long-term change influencing the development of the labor force in the twentieth century. Thus, for example, considerable attention is given to trends in nonfarm wages -- even though most workers throughout were self-employed or in agriculture -- because a majority of American workers in the twentieth century are wage and salary workers in nonfarm industries. In keeping with this theme, the chapter concludes with a snapshot view of labor markets at the turn of the twentieth century.

The Labor Force, 1800-1900

This part of the chapter discusses the size, composition, and structure

the nineteenth century labor force. Before turning to this task, however, it is useful to review how the nineteenth century labor force is measured. For the census years 1870 to 1900 measurement is based on the gainful worker concept: persons reporting an occupation to census are counted as in the labor force. Various studies suggest that the gainful worker concept probably gives a larger estimate of the size of the labor force at any point in time than the measurement concept used today (the ("labor force week")[1]. The difference is small in the aggregate, although not necessarily for specific population groups.

Before 1870, the occupation detail in the decennial censuses is not sufficient to apply the gainful worker concept rigorously for all census years. Procedures have been developed to infer labor force participation rates for specific population groups before 1870. Estimates of the size of the labor force are then built up piece-by-piece, by applying these group-specific participation rates to population figures. Although the pre-1870 figures are not as accurate as the post-1870 figures, they are no less reliable than most other nineteenth century economic statistics and, in any event, further improvements to them are likely to be marginal.

Trends in Size

Table 1 gives the best current estimates of the aggregate labor force, population, and the aggregate labor force participation rate for the census years 1800 to 1900. In 1800 about 1.7 million persons were in the labor force, or 32 percent of the population. By 1900 the labor force had swelled to 29.1 million, fully 38 percent of the population. Over the century the

labor force grew at an average annual rate of 2.8 percent. Growth was faster before the Civil War (3.1 percent per annum from 1800 to 1860) than after (2.4 percent per annum from 1860 to 1900). Growth also varied across decades. The 1840s experienced a jump in the labor force while the labor force grew slowly during the 1860s.

Despite the long-term slowdown in the growth rate of the labor force, the aggregate labor force participation rate (the ratio of labor force to population) increased by 6 percentage points over the century. All of the increase in the aggregate participation rate before the Civil War occurred in the 1840s. The postbellum increase commenced in 1870, with most of the increase occurring after 1880. The economic significance of the postbellum increase in the aggregate participation rate can be judged by its impact on per capita income growth. If the aggregate participation rate in 1900 had equalled its value in 1870, the rate of growth of per capita income between 1870 and 1900 would have been lower by 20 percent.

The timing of the decadal changes in aggregate participation suggests that cycles in immigration affected the growth of the nineteenth century labor force, a conclusion which is documented in the next section of the chapter. The 1840s witnessed a sharp jump in immigrant arrivals compared with the 1830s, while immigration was curtailed in the 1860s because of the Civil War. Huge waves of immigrants, primarily from Southern and Eastern Europe, arrived after 1880. On an annual basis, immigration was closely tied to business cycle conditions in the United States and the sending country. Bad times in the United States, compared with Europe, slowed the rate of immigration. During expansionary phases of the American business cycle, immigration to the United States surged.

Variations in Labor Force Participation

Information on variations in labor force participation across population groups is more abundant for the late nineteenth century, particularly from census data. Sufficient evidence exists, however, to sketch out various patterns for the antebellum period.

For free males ages 15 and over, participation in the labor force (in the gainful worker sense) was near universal: the participation rate was close to 90 percent. For free males between the ages of 10 and 14, the participation rate was sharply lower, around 18 percent. The lower participation rate among children was a consequence of school attendance, and the fact that relatively few children were engaged in a gainful occupation according to the census definition, although many, perhaps most, worked on the family farm or in family businesses.

For free females ages 16 and over, the available evidence suggests a participation rate of about 8 percent at the start of the nineteenth century. By midcentury the participation rate had climbed to about 11 percent, reflecting economic developments that created new job opportunities for young, single women. Chief among these opportunities was the emergence of factory employment. Others found work in a traditional setting, domestic service, or as teachers. North-South differences were pronounced: few young women in the South worked in factories, and relatively fewer than in the North were employed as teachers. Participation rates for married women were very low throughout the first half of the century (5 percent or less), although research suggests they may have been somewhat higher in the

late 1700s.

For slaves over age 10, the labor force participation rate was around 90 percent, with virtually none of the age or gender differences evident among the free population. The absence of age and gender differences in participation among slaves meant that their aggregate participation rate was markedly higher than that of free labor. The abolition of slavery at the end of the Civil War brought a sharp decline in the aggregate labor force participation rate of former slaves, as black women and children reduced their labor force activity once they were free to do so.

The public use sample of the 1880 census provides a detailed look at labor force participation at approximately the midpoint of the second half of the nineteenth century. Appendix Table 1 gives participation rates derived from the public use samples for various population groups. The following discussion highlights the salient findings.

Labor force participation among adult men (ages 20 and over) remained close to universal, declining only after age 65. By modern standards, however, participation rates among the elderly were very high; "retirement", in other words, was far less common than today. Among adult women, participation was more a function of age than among adult men, but especially of race, marital status, and urban-rural status. Black women were much more likely to be in the labor force than white women. A study drawing upon the census manuscripts for 1870 and 1880 shows that the racial difference was partly due to the lower economic status of adult black men, and that some of the difference was a legacy of slavery. The participation rate of married women remained low, around 5 percent, or 26 percentage points below the participation rate of unmarried women. Women in urban

areas were much more likely to report a gainful occupation than rural women.

Among children and young adults (ages 10 to 19), labor force participation was a function of age, gender, race, and ethnicity. Males under age 20 entered the labor force in large numbers around age 15, and were more than twice as likely as females in the age group to participation in the labor force. Black children had higher participation rates than white children. The same contrast is evident among foreign and native-born children; because the foreign-born population was more likely to be adults, the gap in participation between the foreign and native-born was even larger in the aggregate than among children. Urban males had lower participation rates than rural males, but the opposite was true among females; the gender difference was such that, in the aggregate, urban-rural status had no effect on the participation rate.

Thus labor force participation in the nineteenth century was sharply delineated by age, ethnic/racial, and gender differences. These differences suggest three factors behind the long-term upward trend in aggregate participation noted in the previous section. First, because fertility fell throughout the nineteenth century, the composition of the population shifted towards adults of working age. Second, immigration raised the aggregate participation rate, in two ways: foreign-born children had higher participation rates than native-born children, and the foreign born were more likely to be adults. Third, urbanization raised the aggregate participation rate by increasing the fraction of women who held gainful occupations.

Structure

The structure of the labor force refers to the distribution of workers across industries or occupations. By far the most important change affecting the structure of the labor force in the nineteenth century was the shift of labor out of agriculture. Table 2 shows the percent in agriculture at census years intervals. In 1800 approximately three-quarters of the labor force was engaged in agriculture. Agriculture's share of the labor force fell by 14 percentage points between 1800 and 1850. The shift out of agriculture accelerated in the second half of the century. By 1900, 36 percent of the workforce was employed in farming. The shift out of agriculture varied across regions. New England led the way, with less than 40 percent of its workers in farming on the eve of the Civil War. The South lagged behind, the only part of the country to have a majority of workers in farming at century's end.

Economic historians have explained the shift of labor out of agriculture by appealing to technological change and the nature of demand for agricultural goods. Technological change increased the productivity of labor in both agricultural and nonagricultural occupations. The demand for agricultural goods was, however, relatively inelastic with respect to price and to income; conversely, the demand for nonagricultural goods was relatively elastic. Increases in agricultural productivity reduced the value of the marginal product of labor in agriculture relative to other sectors. To restore equilibrium, labor migrated out of agriculture.

Where did the labor go? Manufacturing was by far the most important industry on the receiving end. Essentially non-existent before 1820,

manufacturing employed slightly less than a third of all nonfarm workers by 1840. The proportion in manufacturing reached 37 percent in 1860, where it more or less remained for the rest of the century. Table 3 shows the distribution of employment across industries in 1900. After manufacturing, trade and transportation claimed the most workers, about 32 percent. Services, including government employed another 20 percent, followed by mining and construction (12 percent).

The distribution of employment by occupation classifies the labor force in a manner more closely related to worker skills than the distribution by industry. Although some information on occupations was collected in the 1820 and 1840 censuses, the data were very crude and not readily comparable to later census years. A glimpse at the structure of occupations at mid-century is available from the published volumes of the 1850 census. The figures pertain to free males, ages 15 and over. Similar data for females, unfortunately, cannot be gleaned from the published census volumes.[2] Table 4 lists the ten principal occupations in 1850. Approximately half of the census respondents declared themselves to be farmers. Laborers were the next most common occupation, making up nearly 17 percent of all occupations reported. Blacksmiths, carpenters, masons and plasterers made up 6.5 percent of free male workers. Clerks and merchants, the biggest white collar occupations, comprised another 3.8 percent. The remainder of workers labored at the several hundred additional trades listed in the 1850 volumes.

Table 5 shows the distribution of occupations in 1900. Approximately 40 percent of males were in agriculture. Among males in nonfarm occupations, 30 percent held white-collar occupations, primarily as managers or proprietors, while 39 percent labored as skilled tradesmen or in semi-

skilled blue collar jobs. Unskilled labor and various low-skilled service occupations employed another 30 percent. Compared with men, women were much less likely to work in agriculture (19 percent compared with 40 percent). Compared with men, women in nonfarm industries were less likely than hold a white or skilled-blue collar job; approximately two-thirds were employed as semi-skilled operatives, unskilled laborers, or in the service sector, primarily in domestic service.[3]

Some additional insights into the determinants of occupations in 1900 are provided by Appendix Table 2, which reports regressions of occupations for adult men, ages 20 to 59. Race and ethnicity strongly influenced the occupational distribution among males. Compared with native-born white men, blacks were concentrated in unskilled occupations, farm and non-farm. The foreign-born were less likely than native-born whites to be white-collar workers or farm operators, but were more successful than blacks at obtaining semi-skilled and skilled blue collar jobs. Various studies suggest that controlling for language skills, work experience, and time in the United States explains most of ethnic differences in occupational (more generally, economic) status. Racial differences, however, were far more a consequence of employment discrimination and access to training that would have enabled black men to improve their occupational status.

The structure of occupations varied by age and literacy status, two indicators of human capital. Younger men were more likely to be employed as unskilled laborers or semi-skilled operatives than in skilled blue collar jobs; as farm laborers than farm operatives; and as clerical or sales workers than in higher-income managerial or professional occupations. or as unskilled laborers. Although educational background was arguably less

important than today in the determination of economic status, basic literacy clearly raised the odds of holding a white or skilled blue collar occupation.

Reflecting geographic differences in the structure of industries, the distribution of occupations varied across regions and, within regions, with proximity to an urban area. Residents of the South Central states, for example, were less likely to be skilled blue collar workers than residents of the Midwest or New England. Urbanites were more likely to be white collar workers or be employed in a skilled trade but, reflecting the fact that nonfarm jobs in the nineteenth century -- particularly manufacturing-- were not solely urban jobs, urban proximity mattered much less in determining the chances of being a factory operative.

Wages in Nineteenth Century America

The return to labor is a fundamental statistic in the economic history of any country. The growth of nominal wages in the long run, adjusted for the cost of living, is a conventional yardstick of improvement in living standards. Because no national surveys of income were taken in nineteenth century America wage differentials between occupations have been used to gauge the extent of income inequality. Changes in real wages over the short or medium run are central to the labor history of the period. Geographic differences in wages provide insights into regional migration patterns and the evolution of national labor markets.

This part of the chapter reviews the available evidence on wages in nineteenth century America. Although it is not possible to construct a

single, aggregate index of real wages over the century, there is abundant evidence that real wages were substantially higher at the end of the century than at the beginning. At present, there are no indications of secular trends in occupational wage differentials. Thus long-run growth in real wages was experienced by all the various groups making up the working class. Equally central to that experience, however, was short and medium-run variability in real wages around the upward trend. At various times real wages declined or remained constant for several years. Although there is some evidence that, in the aggregate, hours of work increased on average with the shift of labor out of agriculture into manufacturing, weekly hours of work in manufacturing appear to have declined over the century.

Long Run Trends in Real Wages

1800-1860. Except for a few years (1832, 1850, and 1860) no comprehensive surveys of wages taken before the Civil War. As a substitute, economic historians have turned to government surveys conducted retrospectively in the late nineteenth century and various archival records: manuscript censuses, account books, and firm payrolls.

The most famous compilations of nineteenth century wages for the United States are contained in two federal government documents, the Weeks report, published as part of the 1880 federal census; and the Aldrich report, published by the Senate in the early 1890s as part of a lengthy investigation of wages and prices in different industries and countries. Both reports are useful for the post-Civil war period, but for the antebellum era, however, gaps in temporal coverage, geographical

unrepresentativeness, and various other defects have led economic historians to search for alternative bodies of wage evidence.

Perhaps the most famous such source consists of the payroll records of the Erie Canal. Estimates of the trend growth rate in real wages between 1828 (the first year data are available) to 1860 for two of the principal canal occupations, common labor and carpenters, are 1.4 percent per year for common labor and 1.6 percent for carpenters.[4] For the pre-1830 period the Erie Canal data can be supplemented by information on daily wages of common laborers and artisans in the building trades in Philadelphia. In real terms, common laborer;s pay rose by 1.6 percent per year between 1800 and 1830. The growth rate for artisans was 1.8 percent per year. The difference in growth rates was not statistically significant.[5]

Data on wages paid to manufacturing operatives and agricultural labor have also been compiled. One study found that real wages of manufacturing workers in the Northeast increased by 1.2 to 1.6 percent per year between 1820 and 1860, depending on the price index used to deflate nominal wages. Growth in average wages in manufacturing was accompanied by a rise in the wages of female operatives relative to male operatives. A key reason why manufacturing first emerged in the Northeast was that manufacturers could take advantage of an initially low relative (to adult males) wage of women and children in agriculture, the sector from which manufacturing labor was drawn. In regions where the relative productivity of women and children was high (the South) development of manufacturing before the Civil War was delayed. The increase in the relative wages of women and children slowed considerably, however, by the middle of the nineteenth century, as a new source of cheap labor, immigrants, found its way into American factories.

Antebellum evidence on agricultural real wages yields a conflicting picture of change. One study of wages paid to farm labor in the South Atlantic states suggests very little or no real wage growth from 1800 to 1850. Data on monthly wages of farm labor in the Midwest and Mid-Atlantic states, however, suggest a rate of growth similar to that of nonfarm labor. Similar findings have been obtained for farm labor in Massachusetts and Vermont.

Perhaps the most comprehensive archival source of antebellum data on nonfarm wages pertains to civilian employees of the United States Army. As the army forged a path for western settlement, civilians were employed to construct and maintain its forts and other military installations. Fortunately for economic historians, the civilian payrolls have been preserved, and a large sample covering the period 1821 to 1856 has been collected. Comparisons with nonmilitary sources suggest that most workers were paid the going wage in the area where the fort was located. Sufficient data are available in the payrolls to construct regional indices of real wages for common laborers, artisans, and clerks.

Table 6 shows estimates of long-run growth rates of real wages computed from the army data. For common laborers the growth rates range from 0.6 percent per year in the South Atlantic states to 1.6 percent in the Northeast. Growth rates of real wages of artisans were somewhat lower, again being lowest in the South Atlantic states. Clerks, a major white-collar occupation of the period, experienced slightly greater real wage gains than either common laborers or artisans, but the differences across occupations were relatively small. It is also clear that real wage growth differed across regions. Occupational and spatial differentials are

discussed in greater detail later in the chapter.

1860 to 1900. For the years during and after the American Civil War the measurement of trends in real wages is on a firmer footing. The Weeks and Aldrich Reports, previously described, provide the evidential basis for the construction of real wage series. Combined with census and other data, on occupations and hours worked, an economy-wide real wage series for nonfarm labor can be constructed. This series is graphed in Figure 1.

Real wages plunged during the American Civil War, falling by 28 percent between 1860 and 1865. Following the decline was a pronounced recovery from 1866 to 1872. The worldwide depression of the early 1870s left its imprint on the American working class in the form of falling real wages throughout the remainder of the 1870s. As of 1880, real annual earnings of nonfarm workers were no higher, on average, than they had been on the eve of the war. The remainder of the century, however, witnessed a pronounced increase in real wages, punctuated by stagnation (and brief decline) between 1892 and 1898. Measured in dollars of 1914, the average nonfarm worker in 1900 earned $573, about 25 percent higher than the average worker had earned in 1860.

Thus the trend in real earnings for nonfarm workers from 1860 to 1900 was upward, despite periods of stagnation and decline. A regression of real wages on a time trend produces an estimated average annual rate of growth of 1.1 percent. Although the available evidence is not as abundant, data on daily wages of agricultural workers without board suggests a slightly lower growth rate, about 0.9 percent per year.

Summary. Because there are no comprehensive sources of wage data that cover the entire nineteenth century, we cannot be certain of how much higher real wages were at the end of the century than at the beginning. However, we can be sure that the real wages were higher in 1900 than in 1800. An economy-wide average of 1.0 to 1.2 percent per year for daily wages is a plausible guess, based on the available evidence. If these range of growth rates is taken seriously, real daily wages were about 270 to 330 percent higher in 1900 than in 1800. Current estimates place the rate of growth of per capita income between 1800 to 1900 at 1.1 to 1.2 percent per annum. Given the uncertainty over these estimates, a fair conclusion is that real wages grew at approximately the same rate, or just slightly below, as per capita income. A small gap in favor of per capita income can be explained by the long-term increase in the aggregate labor force participation rate, and by the possibility that annual hours of work increased on an economy-wide basis over the century.[6]

Upon demonstrating that real wages rose, it is customary (for economists) to infer that the increase made workers "better off". Whether American workers in 1900 really were better off than in 1800 rests on several implicit assumptions. Work in a large, impersonal factory in Chicago at the turn of the century was fundamentally different from work in a small Massachusetts town in 1810. In principle real wage series can be adjusted to take account of changes in the nature of work, but in practice, such adjustments have not been made for the nineteenth century United States. Still, we can be confident that, in terms of command over material goods and services, the average worker was better off in 1900 than a century earlier.

Geographic Wage Differentials

Economic historians are interested in geographic wage differentials for two reasons. First, geographic wage gaps indicate the spatial extent of labor markets. The erosion of such differentials over time is taken as evidence of the formation of national markets for labor of different skills. Second, geographic wage differentials provide evidence of regional differences in living standards that supplement other evidence, such as per capita incomes.

A central theme of nineteenth century economic development is that various technological advances in transportation and communications diminished geographic price differentials at any point in time and the amount of time for disequilibria to dissipate. Although research suggests that geographically distinct labor markets shared, as well, in the process of market integration, "balkanization" was much greater in the case of labor than other factors of production, or in traded goods.

To measure the extent of labor market integration it is customary to compare estimates of real wages at different locations for narrowly defined occupational categories. Studies using this approach have uncovered substantial geographic differences, frequently over short distances. A study of farm wages in Massachusetts, for example, revealed that spatial differentials widened in the late eighteenth and early nineteenth centuries, as economic development progressed at different rates across rural locations in the state. Analysis of inter-regional differences in real wages in the North using the army payrolls described earlier in the chapter, suggests that real wages were significantly higher in the Midwest early in the

century, particularly for skilled artisans. The real wage advantage of the Midwest diminished over time, consistent with the direction of interregional migration, but the pace of market integration was slow. At the end of the century, real wages were higher (20 percent on average) in the Midwest than in the Northeast. Real wages in the South appear to have been below real wages in the North, although the gap was smaller for skilled than unskilled workers.

A variety of factors have been suggested to account for the sluggish erosion of geographic wage differentials. Flaws in the underlying wage and price evidence, for example, could produce spurious geographic variation in real wages, but the magnitude of the variation is large enough that most scholars do not believe that measurement error is primarily responsible. Other possibilities are that accurate information about job opportunities was not available to a large enough fraction of potential migrants or the nonmonetary costs of migration loomed very large in the minds of potential migrants. Millions of Americans, however, did move across vast, unpopulated regions during the century and millions of Europeans made the journey across the Atlantic. A variety of institutions emerged to provide information to potential migrants, particularly trans-Atlantic ones. Employers in high-wage regions had strong incentives to import cheaper labor and at certain times actively engaged in recruiting efforts. Improvements in the spatial efficiency of product markets ought to have reduced geographic variation in factor prices, including wages. If the existence of geographic wage differentials in nineteenth century America is well-established, a convincing explanation of them remains to be developed.

Occupational Wage Differentials

Economic historians have been interested in occupational wage differentials as a way of gauging the relationship between economic growth and inequality. Does modern economic development produce rising inequality during its early phases? This important hypothesis, long associated with the economist Simon Kuznets, has been examined using contemporary and historical data. Investigating the relationship between growth and inequality in nineteenth century America is complicated, however, by the fact that no systematic surveys of the size distribution of income were conducted. In their place, economic historians have assembled evidence on occupational wage differentials. The working hypothesis is that, if such differentials widened over time, the same must have happened to the degree of income inequality.

Attempts to identify a positive relationship between growth and inequality in the American case were initially successful. A time series comprised of ratios of daily wages of skilled artisans and common laborers in urban areas showed a steady increase after 1830 to about 1860, and then a plateau from 1860 to 1900. Another body of wage evidence, from Massachusetts, suggests increases in the wages of skilled artisans relative to common labor before 1860.

The apparent coincident timing of early industrialization and rising inequality has produced hypotheses linking the two. The most prominent invokes the economic notion of capital-skill complementarity. The price of capital goods fell between 1830 and 1860, resulting in increased capital accumulation. Capital is said to have been a complement to skilled labor;

thus the falling price of capital goods leads to an increase in the demand for skilled labor, relative to unskilled labor. The relative supply of skilled labor is assumed to have been inelastic over the period in question. The increase in relative demand led to a rise in the skill differential, the ratio of skilled to unskilled wages.

Both the evidence and explanation have proven controversial. It is not clear that capital-skill complementarity was a characteristic of early manufacturing technology. The opposite is more widely believed: the factory system led to a substitution of less-skilled labor, predominantly children and young women, for skilled artisans. As noted earlier in the chapter, the growing demand for the labor of children and young women in factories, initially in the Northeast, led to an increase in their wages relative to adult men. Econometric analyses of data from the 1850 Census of Manufactures suggest that capital was a substitute for skilled labor, and a complement to natural resources.

The empirical evidence cited above for an antebellum widening in wage differentials is also questionable. The linked urban series combined wages from disparate locations, and the differentials implied by the series for the 1820s are much smaller than those suggested by other sources. The increase in the skill differentials evident in Massachusetts is not robust to the method used to analyze the data.

The Army payrolls described earlier provide the most comprehensive antebellum evidence on wage differentials, and the results based on this source are best described as mixed. Table 7 shows estimates of the ratios of wages of skilled artisans to unskilled labor, by decade, from this source. Separate estimates are shown for each census region. Except in the

South Atlantic region, there is no indication of a rise in the relative wage of skilled artisans. Wages of clerks, however, did increase relative to common labor (and artisanal pay) before the Civil War.[7] In the absence of a consistent pattern across occupations and regions, however, it seems fair to conclude that, at present, there is no compelling evidence of an overall trend in occupational wage differentials before the Civil War.

The level of the occupational wage differentials has also been of interest. According to the economic historian H.J. Habakkuk, wage differentials between skilled and unskilled labor during the antebellum period were smaller in the United States than in England, and this difference led to a higher capital-labor ratio in various American industries compared with their British counterparts. The differentials shown in Table 7, however, are uniformly larger than the contemporaneous estimates of British differentials, contradicting Habakkuk's thesis.

Data on skill differentials in the late nineteenth century have not been subjected as to the same critical scrutiny as the antebellum evidence. Nevertheless, the available evidence suggests no pronounced long run trend, upward or downward, in the structure of wages from 1860 to 1900. Evidently the supply of skilled labor was sufficiently responsive to shifts in labor demand so as to leave wage differentials largely unchanged in the long run.

Cyclical Instability in Wages

In the long run, real wages increased during the nineteenth century. In the short run, macroeconomic fluctuations caused significant variation in real wage growth around the upward trend. The causes of these fluctuations

are in dispute. Some scholars emphasize changes in the price level to which nominal wages responded with a lag. Others point to the effects of real shocks -- for example, unexpectedly high rates of immigration in the late 1840s and early 1850s are thought to have slowed the growth of real wages, particularly in manufacturing. Research suggests that, regardless of the source, the effects of nominal and real shocks were surprisingly persistent, causing real wages to deviate for substantial periods from their long-run growth path. Persistence varied across occupations and regions. Shocks were less persistent on the wages of agricultural than of non-agricultural workers, and were less persistent on the frontier than in settled regions. With respect to purely nominal shocks, it appears that long-run neutrality held: in the long run, increases in the price level led to approximately one-for-one increases in the level of nominal wages. In the short run, real wages fell during periods of rising prices (for example, the mid-1830s) and rose during periods of falling prices (the early 1840s). Because prices tended to be procyclical during the antebellum period, real wages were countercyclical.

That real wages were countercyclical before the Civil War does not mean that labor welfare was higher during a recession than during a boom. Real wages rose during deflations for employed workers, not for those out of work. The available real wage indices for the antebellum period pertain to daily, not monthly or annual wages. The gains to an worker from a higher daily wage while employed were offset by greater unemployment during the year.

The possibility of cyclical unemployment suggests how the finding of persistence speaks to the nature of antebellum business cycles and their

impact on labor markets. There are two prevailing views on the functioning of these markets. One view is that aggregate economic activity was severely diminished during economic downturns and unemployment was substantial and prolonged. The other is that unemployment did not endure for long, for the agricultural sector served as a buffer: unemployed workers in antebellum cities migrated to the countryside (i.e. to agriculture) and returned when conditions in the nonfarm economy became more favorable. "The parallel between the 1840s and the 1930s extends only to the monetary aspects of the economy ... Farmers, textile workers, and others found their money wages reduced. They were not unemployed, however, and their real incomes may not have fallen."[7] But if shocks to real wages were persistent, the parallel between nineteenth and twentieth century business cycles may not be wholly incorrect. It is true, however, the degree of persistence appears to have been less before the Civil War than in the late nineteenth or early twentieth centuries.

The persistence of shocks to real wages before the Civil War clarifies certain aspects of the financing of the Northern war effort. It has long been known that real wages fell during the war years. Wesley Clair Mitchell's exhaustive study concluded that nominal wages lagged behind prices, so that a portion of the war effort was financed by an inflation tax. Other scholars have disputed Mitchell's conclusion, arguing that the skill composition of the Northern work force deteriorated between 1861 and 1864, and that workers' living standards were eroded by changes in the terms of trade. forces. An econometric study has shown, however, that both real and nominal factors contributed to the wage lag. The fact that sluggish adjustment in wages can be dated to the antebellum period gives credence to

the study's conclusion.

Economic development during the postbellum period contributed to further changes in the relationship between macroeconomic events and wage dynamics. The growth of large-scale enterprises, coupled with the increasing likelihood of collective action, may have lowered the aggregate likelihood that firms would resort to wage cuts during a period of declining demand. Other scholars point to the interruption of persistent deflation by rising prices in the late 1890s, due to gold discoveries. The sudden shift in the price level again led to a wage lag, as similar inflation had before the Civil War. By 1900 the responsiveness of wages to either price or output shocks was sluggish absolutely, and relative to the antebellum period. Compared with today, however, wages were more flexible at the turn of the century.

Hours of Work

The phrase "hours of work" refers to the amount of work per day, week or year. Most of what is known about hours of work in the nineteenth century pertains to manufacturing. A time series of weekly hours in manufacturing is shown in Figure 2. The general trend in manufacturing hours was downward. In the early 1830s the average work week was 69 hours. By the eve of the Civil War the work week had fallen to 62 hours, with the greatest reductions occurring during the 1850s. Further declines occurred during the postbellum period, but the pace of change was slow. At the end of the century the average work week was still quite long by modern standards, about 59 hours per week.

The proximate cause of the decline in weekly hours was a decline in daily hours. The earliest available estimate, from the McLane Report for 1832, puts manufacturing hours at 11 hours 20 minutes per day. Daily hours fell to around 10.5 by the eve of the Civil War and to just over ten hours in 1880. Daily hours in 1880 were longest in the food, paper making, and chemical industries, and shortest in construction. Although hours were generally longer in southerly latitudes and during the summer, geographic and seasonal differences were small because of widespread use of artificial lighting by firms in the Northeast, particularly in urban areas.

On an economy-wide basis, it is probable that annual hours of work rose over the century, by around 10 percent. The increase in annual hours had three sources. First, annual hours were greater for indoor work, like manufacturing, than for outdoor work, like agriculture. Thus the shift of labor out of agriculture, by itself, raised annual hours. Second, factory owners had an incentive to keep fixed capital in operation, and this incentive became more pressing as firms grew in size and production became more capital intensive. The result was a decline in the seasonality of labor demand, meaning that employment was more evenly distributed throughout the year. Third, improvements in the spatial mobility of labor between industries reduced the seasonal component of labor supply, and arguably the amount of annual "downtime" (nonemployment) for the average worker.

In explaining the decline in weekly hours, historians have traditionally emphasized the twin roles of organized labor and the state. According to this view, employers steadfastly resisted a decline in weekly hours, and they could only be convinced by strike or government edict. The union push for shorter hours essentially began in the late 1820s and early

1830s, as workers in Philadelphia, Boston, and New York clamored for a ten-hour day. Agitation for shorter hours diminished during the Panic of 1837 and its immediate aftermath, but it picked up again in the 1840s, leading to the passage of the first "maximum hours" laws in New Hampshire (1847) and Pennsylvania (1848). The federal government, at the direction of President Martin Van Buren, established a ten hour day for manual labor in 1840.

After the Civil War the cry of organized labor changed from the ten hour to the eight hour day. Legislatures in eight states and the federal government responded by passing laws limiting employment to eight hours per day. By 1896 13 states had passed maximum hours laws. Although the provisions of the laws were aimed at women, ostensibly as protection for their health, a careful study of their origins reveals that organized labor had a different goal: the reduction of hours for all. Because of occupational segregation, men and women were complementary factors in most nineteenth century manufacturing industries -- reducing the use of one entailed reducing the use of the other. At the same time, strikes for shorter hours became more common, reaching a peak in the mid-1880s.

Although there is no doubt that unions and the state played some role in generating the decline in hours, the traditional emphasis on both factors is probably misplaced. Except in a few states, such as Massachusetts, direct enforcement of maximum hours legislation was nonexistent, although some employers may have been prompted to obey the law out of civic duty. The length of the workday was not the major issue in the vast majority of strikes, even in the 1880s. For the most part, reductions in hours in the nineteenth century were the outcome of individual bargains struck between workers and employers, in the context of a competitive labor market. The

demand for shorter hours on the part of workers reflected their desire for more leisure, to enjoy the fruits of higher real wages and possibly, as noted above, to compensate for longer annual hours. Individual employers, however much they might have opposed shorter hours on ideological grounds, were willing to compromise rather than lose their workforces. Labor efficiency may have been enhanced by shorter hours, and this, too, reduced the cost of change to employers.

Labor Relations

Hidden beneath the statistics of the labor force in the nineteenth century are fundamental alterations in the nature of work. The American economy in 1800 was an agricultural economy. Work for wages as a way of life was uncommon, and families sought economic independence in ownership of land or physical capital. Although there are no reliable statistics on self-employment early in the nineteenth century, there is no doubt that the economy-wide fraction of workers who were self-employed was higher ca. 1820 than in 1900. As more and more Americans worked for someone other than themselves, there were important changes in informal and formal relations among employer, employee and, to a far lesser extent, the government. In the twentieth century these changes have continued as economic development has further diminished the share of the labor force that is self-employed.

<u>From Artisanal Shop to Factory</u>

Some of the most profound changes in labor relations took place in

manufacturing, as the factory mode of production eventually displaced the "artisanal shop". In an artisanal shop, journeymen and apprentices labored under the supervision of a master craftsmen, producing goods on custom order. Each worker labored from start to finish on a product, using his own tools. Over time, an apprentice might become a journeyman, and a journeyman might master his craft. With luck and sufficient foresight to accumulate capital and managerial skills, a journeyman could achieve economic independence and high social status through ownership of an artisanal shop.

In terms of labor organization, factories differed from their artisanal counterparts in numerous ways. Tasks in the factory were much more specialized and work more routinized, as the goal was the production of a standardized good for a national or international market. As Adam Smith first recognized, division of labor brought economies of scale. Workers were allocated to those tasks at which they had a comparative advantage, and efficiency could also be enhanced through learning-by-doing. From the perspective of the factory worker, the price of specialization was the boredom and alienation induced by the repetitive nature of factory jobs. The pace and intensity of factory work were also far greater than in artisanal shops. Because the skills embodied in the average artisan were superior to those embodied in the average factory worker, it is not surprising that many journeymen viewed the factory system with concern. Some, as described later in the chapter, sought refuge in labor organizations or political action, hoping to stem the tide. Others embraced the new system, seeking to become factory owners themselves.

The efficiency gains from division of labor did not happen overnight. Workers had to become accustomed to the discipline of factory life. Factory

owners used a variety of means of supervision to realize productivity gains: direct monitoring of employees on the shop floor; piece rates and various other payment schemes to induce and reward effort; company towns, in which personal behavior was closely watched. Workers unable to fit in were fired, and in many cases found themselves blacklisted, unable to find similar work elsewhere. The difficulties of molding a factory workforce out of a pre-industrial population occurred wherever manufacturing spread in nineteenth century America.

Factories offered an employment package of wages and working conditions different from that offered to wage labor in agriculture and certainly different from artisanal shops. It is not surprising, therefore, that factories initially drew upon rather different sources of labor. As noted earlier in the chapter, the growth of manufacturing in the Northeast before the Civil War was fueled by the ready availability of children and young, single women whose productivity in agriculture (relative to adult males) was comparatively low. By mid-century another type of cheap labor, immigrants, emerged as a dominant source. The foreign-born filled a large share of manufacturing jobs throughout the second half of the nineteenth century, particularly in urban areas in the Northeast and Midwest, which received a disproportionate share of new immigrants.[8]

Although the factory method was in place before the Civil War, it should not be inferred that the artisanal shop was dead. Most manufacturing workers, in fact, still labored in small, unmechanized establishments in 1860 -- hardly factories in the modern sense, in the eyes of many historians.[9] There were also intermediate organizational forms between the artisanal shop and the true factory. In the putting-out or domestic system,

workers (who were mostly women) labored at home producing intermediate goods which would later be turned into finished products by skilled craftsmen. The putting-out system first emerged in textile production, but it soon spread to other industries in a closely related form, the "sweating" system. In the sweating system, "outworkers" performed ever more finely subdivided tasks for which they were almost always paid by the piece. Outworkers escaped the constant supervision of the factory foreman and, because they were paid by the piece, had some control over their own productivity. This does not mean, however, that outwork was desirable. Outworkers whose product did not meet acceptable quality or quantity standards might be fined, have their piece rates reduced, or be dismissed. Piece rates generally declined and the pace and intensity of outwork increased in the late 1840s and early 1850s, as immigrants glutted labor markets in cities, such as New York, were outwork was common.

After the Civil War factory workforces grew substantially in size. The growth of large-scale manufacturing was a consequence of technological progress in production, distribution, and transportation networks. Capital per worker rose, and the use of inanimate sources of power become the norm, not the exception (as was true before the Civil War). The larger scale of production, coupled with the increase in capital intensity, created new problems of organization and supervision of factory labor. The rules proscribing behavior in the workplace increased in number and complexity. Shop foremen were vest with authority over hiring, firing, and promotion decisions. Manufacturing workers might comfort themselves with the knowledge that their real wages had grown since the Civil War, but the social gap between themselves, and the managers and owners of the firms for

whom they worked, was vastly larger than it had been in the days of the artisanal shop.

The Growth of Unions, 1800 to 1900

Although craft unions existed during the colonial period, the first recognizable attempt at a labor movement in the United States occurred in the 1820s. The stirring of the factory system alarmed journeymen who foresaw the devaluation of their hard-won skills, social standing, and way of life. The ideology that fueled this early labor movement has been called "radicalism" by the labor historian Bruce Laurie. Radicalism was not against private property, nor did it seek widespread involvement of the state in labor relations and in regulating economic activity. Radicals embraced bread-and-butter causes such as shorter hours, higher wages, and better working conditions. In keeping with the spirit of the times (the Jacksonian era), radical labor also inveighed against imprisonment of debtors, and favorable legislative treatment of the "unproductive" classes, such as bankers and lawyers. The intellectual underpinnings of radicalism were provided by eighteenth century English political economists such as Thomas Spence, William Thompson and John Gray, who advocated worker control of the means of production; and Americans like Langston Byllesby, who 1826 book Observations on the Sources of and Effects of Unequal Wealth studied the impact of technology on class differences, and Philadelphian William Heighton, who founded the Mechanics' Free Press in 1827.

Concrete manifestations of radicalism from the late 1820s to late 1830s took the form of union organizing, political action, and greater frequency

of strikes. Perhaps the most colorful attempt at politics was the establishment of the Working Men's Party in Philadelphia in 1828. A New York branch of the party followed within a year, as did a Massachusetts branch. Although the Working Men did relatively well in garnering votes in Philadelphia and New York in the late 1820s, the party disintegrated in the early 1830s, a victim of internal squabbles and poor management.

Like the Working Men, the great majority of antebellum labor organizations were short-lived and ill-fated. In retrospect, it could hardly have been otherwise. Radicalism found favor among white male journeymen in large, urban areas, who were a minuscule fraction of the aggregate labor force at the time. Since one of the appeals of radicalism involved the preservation of the economic and social status of journeymen, the movement stood in uneasy alliance with (indeed, largely ignored) factory hands, putting-out labor, and outworkers.

Given such shaky foundations, the fortunes of the antebellum labor movement were closely tied to the business cycle. Strikes before the Civil War were procyclical, rising in booms and falling in recessions. Journeymen cabinetmakers in New York City struck in 1835 because the "price book [for journeymen's wages] used by their masters was more than a quarter of a century old ... [t]he old book failed to keep up with the cost of living."[10] But when the Panic of 1837 turned into a depression in the early 1840s, unionism all but ceased.

If macroeconomic blows were not enough, the legal system sometimes stood in waiting to strip labor of its growing power. In an 1830s case involving journeymen shoemakers in Geneva, New York, Chief Justice Savage of the New York Supreme Court ruled that union members who failed to work for

employers who also hired non-union labor were guilty of criminal conspiracy. Not all decisions were as anti-labor as the one in Geneva, however. In Commonwealth v. Hunt (1842), Justice Lemuel Shaw of the Massachusetts Supreme Court held that mere formation of a union was not evidence of criminal conspiracy, and that the union members did have the right to press for a closed shop.

The boom-and-bust cycle continued for the final two decades of the antebellum period. Except for a slight flowering in the mid-1840s, labor activism remained dormant until the early 1850s, New concerns over immigration and the geographic extension of slavery were added to the older causes embraced by radicalism. Once again, however, the nascent labor movement was severely curtailed in 1854 and 1857, both years of economic downturn.

Despite their limited penetration into the labor force, antebellum labor organizations were far from total failures. Many strikes did raise wages, forestall wage cuts, reduce hours, and improve working conditions, if only for a while. Today the political causes taken up by radical laborism-- extension of the suffrage, public education, the right to union activity, unjust imprisonment of debtors, and so on -- seem quaint, but they were matters of the utmost urgency to early labor advocates and their followers.

The early years of Civil War witnessed a short-run decline in the labor movement. Unionism increased markedly, however, after 1862 in response to rapid price inflation and declining real wages. Most of the increase in membership occurred in local crafts unions. In the three industrial states of New York, Massachusetts, and Pennsylvania, approximately 200,000 workers were members of 300 local unions in 1864. With the end of the war came a

temporary lull, as returning soldiers glutted local labor markets, thereby straining labor's bargaining power. Still, by 1872, several hundred thousand workers were members of craft unions, perhaps as many as 400,000 in national labor organizations.

Labor leaders recognized that national organizations had more clout at the polls and more bargaining power in local disputes. Advances in transportation and communications had made both capital and labor more mobile. Strikes and other labor disputes were more likely to be resolved in the favor of workers in one area if employers were unable to attract strikebreakers from another locality.

Accordingly, several national labor organizations emerged on the scene after the war. The National Labor Union (NLU) was a loose confederation of trade unions that sought solidarity throughout the working class in its struggle against capitalists. Compared with antebellum radicalism, the NLU had a decidedly socialistic flavor to its platforms; for example, the NLU advocated producers and consumers cooperatives. Despite numerical strength (500,000+ members) the NLU was defeated at the polls in 1872, and it was unable to hold together its diverse political coalition of agrarians, conservative craft unions, and social reformers after the election.

The Knights of Labor were another organization that attempted to establish a national power base. Formed in 1869, the Knights grew slowly during the 1870s. Membership in the Knights then exploded between 1881 (20,000) and 1885 (750,000). The growth in membership had several causes. After overcoming some early misgivings, the Knights sanctioned, and more importantly won, a number of major strikes against the railroads in 1884 and 1885. The Knights' success with the railroads set off strikes in other

industries throughout the country. Between 1885 and 1886 the number of strikes increased by 220 percent. The Knights also embraced the eight-hour day, which had tremendous appeal to overburdened factory workers. Perhaps the most significant factor, however, was the willingness of the Knights, unlike the crafts unions, to accept unskilled and semi-skilled workers as members.

The Knight's success, however, was as short-lived as its meteoric rise. A critical strike against Jay Gould's railroad in 1886 was lost. The Knight's call for a nationwide strike in favor of the eight-hour day failed in May of 1886. Contributing in no small measure to the Knight's failure was a bombing incident at a rally in Haymarket Square in Chicago on May 4, during which several people were killed. The public recoiled in horror at the carnage, and subsequent rallies in other cities met with a heightened police and militia presence. For the time being, the eight-hour day was dead. The Knights membership fell precipitously shortly afterwards.

Data collected by the U.S. Department of Labor provide the basis for an econometric analysis of the outcomes of the strikes fostered during the ascendancy of the Knights. Today it is the rare strike that ends in total victory for the union or the employer, but strikes in the early 1880s were much more likely to be "winner-take-all". About half ended in victory for the workers; only about 10 percent were compromise settlements. Benefits to victorious workers, in the form of higher wages, shorter hours, or the forestalling of wage cuts, were often substantial. The odds of worker victory were greater if the strike were initiated or sanctioned by a union, and if the duration of the strike were brief. The odds of employer victory were enhanced if the firm managed to hire strikebreakers, and employers'

bargaining power was permanently higher after the Haymarket affair.

Although less auspicious in the beginning than the Knights, the American Federation of Labor (AFL) had more staying power. Formed in 1886 from the splintering off of six craft unions from the Knights that had grown dissatisfied with the organization's distancing from traditional craft issues, membership in the AFL grew slowly but surely for the rest of the century, reaching 250,000 by 1900. The AFL, under the leadership of its first president, Samuel Gompers, was to become the dominant player in the American labor movement well into the twentieth century.

Like the Knights, the AFL leadership did not shun strikes it felt were necessary and it could win. Unlike the Knights, the AFL adhered to the belief that unions should be organized predominately by craft. Mixing together workers of different skills, the AFL believed, would weaken solidarity. But the key to the AFL's long-term success was its flexibility in structure. The United Mine Workers, for example, joined the AFL shortly after the turn of the century, even though its members differed widely in skill. Without a doubt, the most enduring legacy from the AFL's nineteenth century history was its ability to obtain written contracts with employers. Uncommon before the 1890s, written contracts became the mainstay of collective bargaining in the twentieth century.

The flamboyance of the American labor movement in the late nineteenth century aside, the fact remains that American workers ca. 1900 were far less likely to be union members or embrace socialist labor causes than their European counterparts. The transatlantic difference was so stark that it prompted the German sociologist Werner Sombart in 1906 to pose the question, "Why is there No Socialism in the United States?" One answer, associated

with the labor economist John R. Commons, attributed the difference to a general aversion among American workers to socialist ideology. Selig Perlmann, a student of Commons, pointed out that the franchise had been extended to American (white male) labor far earlier than it had in Europe, that Americans shared a deep belief in the right to private property, that internal migration mitigated against the formation of stable working class communities, and that high rates of immigration made it easier for employers to divide and conquer the working class. Perlmann's argument about internal migration received added weight from the quantitative work of Stephan Thernstrom and his students, who discovered extraordinarily low "persistence rates" in various cities.[11]

The "new labor history" has sought to distance itself, not always successfully, from Commons and his followers. New labor historians argue that class consciousness, if not socialism, was never far from workers' minds. The failure to establish a large scale socialist labor movement in the United States can be linked to several factors. Antebellum radicalism lingered on well into the late nineteenth century. Radicalism, as noted earlier, did not seek solidarity with the state, unlike socialism. And perhaps for good reason: American employers were willing to use violence to stem unionism, frequently with the tacit or explicit approval of federal and state authorities.[12] The prospect of bodily harm, at the hands of an employer's hired guns or the state militia, surely dampened the fervor of budding unionists. Labor organizations could not seek refuge in the courts. Although the legality of unions was not in doubt, employers at the end of the century still had the right to insist that workers leave the union as a condition of hiring. The closed shop was the product of a later era. Other

historians point to conflicts within the labor movement that were deftly exploited by capitalists. Big-city construction unions, for example, were bought off with high wages. When other, more radical unions were threatened with repressive police tactics, construction unions stood idly by, anxious to preserve the status quo.

In the end, however, the postbellum labor movement could claim many partial successes. Unions were sometimes able to mitigate the arbitrariness and harshness of workplace rules in some firms. Union members were generally paid higher wages than their non-union counterparts, although the gap was small, except in a few industries. Most fundamental, however, is that unions grew numerous and large enough so that their very existence was no longer at the mercy of the business cycle.

Government Regulation of Labor Markets: Protectionist Legislation

Contemporary labor markets are subject to an enormous array of government regulations. The vast majority of these regulations have their origins in the Progressive era of the early twentieth century or the New Deal of the 1930s. By comparison, government played a more limited role in regulating labor market behavior in the nineteenth century.

Aside from the court cases directed at union activity, the only notable attempts as direct government interference involved "protectionist" legislation: compulsory schooling laws, child labor legislation, and maximum hours laws. Compulsory schooling laws sought to require children to remain in school until particular ages or to require a certain amount of days attended within the year. Child labor laws regulated the employment of

children at certain ages. Maximum hours, discussed earlier in the chapter, set upper limits on the number of hours persons could work per week. Massachusetts and other states in the Northeast were leaders in the passage of such legislation. Southern states, with very few exceptions, were laggards.

Among economic historians, the general view of nineteenth century protectionist legislation is that the laws were not very effective because, with few exceptions, they were not rigorously enforced and they mostly ratified behavior that would have happened anyway. Compulsory schooling laws, for example, did lead to higher rates of school attendance but the effects were quantitatively small. In retrospect, these results are easily explained: opposition to compulsory schooling laws was greatest where which child labor was relatively important, and which parental demands for schooling were comparatively low. As economic development led to higher real incomes of parents and lowered the relative wage of child labor, the demand for schooling increased, reducing the supply of child labor to the market. Schooling laws, in other words, were more a consequence, than a cause of increased school attendance over time.

Maximum hours laws, mentioned earlier in the chapter, exemplify the importance of enforcement. An analysis of the effect of maximum hours laws on manufacturing hours in 1880 reveals that only the Massachusetts law had its intended impact because the state government attempted to enforce the law. Some firms, of course, tried to evade prosecution but the legality of the Massachusetts law was upheld by the State Supreme Court.

The relative dearth of government regulation of labor arguably reflects a particular "strict constructionist" interpretation of the Constitution.

Article I, Section 10 declared that states could not pass laws abrogating contracts. Early maximum hours laws, therefore, contained loopholes that permitted employees to contract out of the provisions of the law, obviously rendering them effective.[13] In the late nineteenth century legal opinion began to shift as monopoly and other undesirable elements of unfettered market capitalism appeared. While protectionist legislation may not have had much effect at the time, it was part of a broader ideological movement that set the stage for a vastly larger government role in the economy, which came to fruition in the twentieth century.

The Labor Market at Century's End: A Snapshot

Textbook accounts of labor markets are built on simple notions of demand and supply. The demand for labor depends on the demand for the firm's product and the firm's technology. Aggregation to the industry level determines the industry demand for labor. Labor supply is the outcome of a decision process at the individual or household level. The intersection of demand and supply determines the equilibrium wage at any point in time. In this formulation the market for labor does not differ conceptually from the market for, say, apples. Economists refer to such a formulation, speaking loosely, as a spot market.

Labor markets today differ from the spot market conception. It is doubtful that wages alone play the allocative role of equating current demand and supply . Much allocation of labor takes place within structured frameworks specific to firms, dubbed "internal labor markets" by economists. The timing of the switch from spot to internal labor markets is uncertain,

but is usually dated to the 1920s and 1930s. In the 1920s large-scale enterprises adopted the various modern personnel practices associated today with internal labor markets. The trend towards bureaucratic methods accelerated in the 1930s, as mass unemployment permitted firms to more carefully screen workers, and unionism fostered the growth of seniority-based wage scales and layoff rules.

Exactly how one distinguishes one type of market from the other in practice is somewhat unclear, but most economists believe that a spot labor market is characterized by greater labor turnover than an internal labor market. In this sense, labor markets are the turn of the century are somewhere on a continuum, probably closer to the spot market than the internal labor market model. Job tenure with a firm was generally shorter than today, but a nontrivial fraction of workers did remain with one employer for lengthy periods of time (for example, a decade or longer). The use of promotion ladders, one aspect of an internal labor market, was present in some large enterprises before the 1920s. Wages at the turn of the century did not automatically adjust to equate labor supply and demand, as the spot market model implies.

Evidence on unemployment provides the sharpest contrast between labor markets in 1900 and today. The long-term decline in self-employment coupled with the emergence of regular business cycles, caused unemployment to be a social and economic phenomenon worthy of attention in the late nineteenth century. Information on unemployment was first collected by the federal census in 1880 but the data were judged to be so poor at the time that they were never compiled in published form. Not until the 1900 and 1910 censuses was a reasonably clear definition in use. Unemployment data, similar to

that collected by the federal census, was also compiled as part of various state censuses (for example, Massachusetts) and by state bureaus of labor statistics.

Analyses of these data has provided an overall picture of turn-of-the-century unemployment. The probability of becoming unemployed was less a function of personal characteristics, such as age, work experience, education, marital status, than in the post-World War Two period. By modern standards, the duration of a spell of unemployment was also relatively brief. Unemployment was, however, an ubiquitous phenomenon among the working class, because the probability of becoming unemployed was much higher than after World War Two. Except among the infirm or the elderly at the margin of leaving the labor force, long-term unemployment (of six months or longer duration) was uncommon.

Some scholars attribute the egalitarian nature of turn-of-the-century unemployment and the short duration of unemployment spells to frequent and widespread use of "industrial suspensions" by firms -- short periods of time in which plants would shut down entirely, throwing everyone out of work. Others argue that the technology in many industries resulted in sharp, seasonal fluctuations in labor demand, and thus widespread unemployment at specific times of the year. Most historians agree, however, that the risk of layoff was widespread because most workers, regardless of their skill or seniority, were not protected by an explicit contract (that is, a union) or an implicit contract within the context of an internal labor market.

There being no unemployment insurance system in the late nineteenth century, how did the unemployed survive? In occupations or locations in which unemployment was predictable, wages were higher: unemployment risk

commanded a wage premium. By saving during periods of employment, the unemployed could finance their consumption when out of work. Others relied on odd jobs or the earnings of other family members, some of whom would entered the labor market when the head of the household was unemployed (called the "added-worker" effect). Still others depended on the kindness of relatives and friends, churches, benevolent societies formed for the purpose of providing support to the unemployed, or unions.

Conclusion

This chapter has surveyed the major trends and changes in the labor force in the nineteenth century United States. In the aggregate the labor force grew faster than the population. Economic development led to a pronounced shift of labor out of agriculture. Although there were significant short run fluctuations in wages due to macroeconomic events, real wages grew for all classes of workers during the century, and there is little evidence that the rates of growth differed across occupations. Geographic differences in wages diminished, but were still substantial at century's end.

The nature of employment relations also changed over the century. Workers in the late nineteenth century labored in manufacturing establishments vastly larger and more structured than their antebellum counterparts. Although the majority of workers were non-unionized in 1900, labor activism had made substantial progress. With the long-term move away from self-employment, unemployment became a much more prominent social and economic problem, affecting a widespread portion of the working class.

Except for certain types of protectionist legislation, government regulation of labor markets was minimal.

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Contracts, and Compensating Wage Differentials: Michigan in the 1890s," Journal of Economic History 51 (September 1991), pp. 605-632.

Notes to Text

*Full citations to works cited in the notes and tables may be found in the annotated bibliography.

1. The "labor force week" concept measures the size of labor force according to whether an individual was employed or actively looking for work during a specified period of time, usually the week of the survey.

2. The census did not collect occupational information on slaves. Other records suggest that between 20 and 30 percent of adult male slaves held semi-skilled or skilled occupations; the majority, however, were fieldhands. For evidence on the occupations of slaves, see Fogel, Without Consent or Contract.

3. The higher proportion of women employed in professional and technical occupations than men reflects the fact that teaching is classified as a professional occupation and that most teachers were women in 1900.

4. The estimates are the coefficients of a time trend from regressions of real wages of canal workers. Real wages were computed by dividing the nominal daily rate by a price index made up of wholesale prices in New York (Williamson and Lindert, American Inequality, p. 319).

5. The Philadelphia growth rates were computed in the same manner as for the Erie Canal data. The price deflator, which pertains to Philadelphia, was taken from Historical Statistics, series E-97, p. 205.

6. See the discussion of hours of work later in the chapter.

7. See Goldin and Margo, "Wages, Prices, and Labor Markets," p. 77.

8. Temin, The Jacksonian Economy , p. 164.

9. Recall from an earlier section that, controlling for other factors, foreign birth raised the probability of employment as a semi-skilled operative in 1900 (see the appendix). By World War One, approximately one of every three manufacturing workers was foreign-born.

10. Many historians prefer to use the term factory in reference to the large scale mechanized firms which emerged after the Civil War. Describing an antebellum manufacturing establishing, even a relatively large one, as a factory amounts to reading "Guilded Age developments into the antebellum years" (Laurie, Artisans into Workers, p. 42).

11. Wilentz, Chants Democratic , p. 232.

12. A persistence rate refers to the fraction of individuals in a location in one year (eg. 1870) still living in the location at some later date (eg. 1880).

13. Employers, of course, did not have a monopoly on labor violence. The point is simply that the likelihood of state and employer-sponsored suppression of union activity was high, and this limited labor activism.

14. Compulsory schooling laws did not face the same legal challenges as maximum hours laws; see Atack and Bateman, "Whom Did Protective Legislation Protect?", p. 15.

Table 1

Labor Force and Population in the United States, 1800-1900

	Labor Force	Population	LFPR (percent x 100)
1800	1,712	5,308	32.3%
1810	2,337	7,240	32.3
1820	3,150	9,638	33.7
1830	4,272	12,866	33.2
1840	5,778	17,069	33.9
1850	8,192	23,192	35.3
1860	11,290	31,443	35.9
1870	12,809	38,558	33.2
1880	17,392	50,156	34.7
1890	23,547	62,948	37.4
1900	29,073	75,995	38.3

Sources:
Labor Force: unpublished estimates of Thomas Weiss
Population: Historical Statistics, series A-1, p. 8
LFPR (labor force participation rate): Labor Force/Population

Table 2

Agriculture's Share of the Labor Force

	U.S.	NE	MA	MW	SA	SC	WS
1800	0.744	0.680	0.707	0.865	0.786	0.823	na
1810	0.723	0.631	0.663	0.838	0.784	0.792	na
1820	0.714	0.631	0.616	0.786	0.784	0.803	na
1830	0.698	0.591	0.582	0.803	0.777	0.782	na
1840	0.672	0.538	0.545	0.763	0.743	0.768	na
1850	0.597	0.386	0.423	0.669	0.739	0.749	0.228
1860	0.558	0.313	0.348	0.621	0.721	0.739	0.306
1870	0.498	0.246	0.276	0.547	0.716	0.725	0.337
1880	0.477	0.205	0.231	0.525	0.711	0.737	0.324
1890	0.401	0.154	0.172	0.429	0.625	0.668	0.294
1900	0.361	0.120	0.133	0.369	0.587	0.640	0.275

NE: New England; MA: Mid-Atlantic; MW: Midwest; SA: South Atlantic; SC: South Central; WS: West
na: estimate not available
Source: unpublished estimates of Thomas Weiss

Table 3

Distribution of Employment by Industry, 1900

	Percent x 100
Mining	4.2%
Construction	7.6
Manufacturing	36.0
Transportation, Communications and Public Utilities	15.0
Wholesale and Retail Trade	16.5
Finance, Insurance, and Real Estate	2.0
Business Services	11.5
Government	7.2

Source: calculated from Historical Statistics, series D-127 to D-141, p. 137.

Table 4

The Ten Principal Occupations in 1850: Free Males
Ages 15 and Over

	Number	Percent of Total
Blacksmiths	99,703	1.9%
Carpenters	184,671	3.4
Clerks	101,325	1.9
Cordwainers	130,473	2.4
Farmers	2,363,958	44.0
Laborers	909,786	16.9
Mariners	103,473	2.0
Masons	63,342	1.2
Miners	77,410	1.4
Merchants	100,752	1.9

Source: computed from J.D.B. DeBow, Compendium of the Seventh Census (Washington, D.C.: Beverley Tucker, Senate Printer, 1854), pp. 126-127.

Table 5

Distribution of Occupations in 1900
(percent x 100)

	Male		Female		Total
White Collar:					
Professional-Technical	3.4%	[5.8]	8.2%	[10.1]	4.3%
Managers	6.8	[11.7]	1.4	[1.7]	5.8
Clerical-Sales	7.4	[12.7]	8.3	[10.2]	7.5
Blue Collar:					
Skilled	12.6	[21.6]	1.4	[1.7]	10.5
Semi-skilled	10.4	[17.8]	23.8	[29.3]	12.8
Unskilled	14.7	[25.2]	2.6	[3.2]	12.5
Service occupations	3.1	[5.3]	28.7	[35.4]	9.0
Farmers	23.0		5.8		19.8
Farm Laborers	18.7		13.1		17.6

[]: as a percent of nonagricultural employment
Source: calculated from Historical Statistics, series D-182 to D-215, p. 139.

Table 6

Real Wage Growth During the Antebellum Period

	Common Labor/Teamsters	Artisans	Clerks
Northeast	1.6%	1.1%	1.6%
Midwest	1.4	0.4	1.3
South Atlantic	0.6	0.4	1.2
South Central	1.2	1.4	2.0

Notes: figures are average annual rates of growth of real wages over the period 1821-1856.
Sources: Common Labor/Teamster, Artisans: Margo, "Wages and Prices During the Antebellum Period," Table 1; Clerks: Goldin and Margo, "Wages, Prices, and Labor Markets Before the Civil War," Table 2A.7.

Table 7

Occupational Wage Ratios, 1821-1856

	Northeast	Midwest	South Atlantic	South Central
1821-30	1.62	2.53	2.09	1.81
1831-40	1.68	2.32	2.25	1.87
1841-50	1.49	1.90	2.11	1.93
1851-56	1.47	2.11	2.24	1.82

Notes: Figures are decadal averages; they are ratios of average wages of skilled artisans to common laborers and teamsters.
Source: Margo and Villaflor, "The Growth of Wages in Antebellum America," p. 885.

Appendix Table 1

Labor Force Participation in 1880

A. Adults (ages 20 and over)

	Men		Women	
	N	LFPR	N	LFPR
Age				
20-24	2,568	90.5%	2,382	24.0%
25-34	3,708	96.3	3,430	14.5
35-44	2,670	96.8	2,712	11.2
45-54	1,969	96.6	1,850	11.6
55-59	659	95.6	1,594	11.1
60-64	564	90.3	474	8.7
65-74	645	82.6	595	5.5
>=75	263	58.2	282	4.6
White	11,360	93.2	10,685	10.5
Black	1,686	96.1	1,639	37.8
Native	10,058	93.5	9,891	14.2
Foreign	2,998	93.9	2,433	14.0
Unmarried	4,579	88.6	4,141	31.2
Married	8,467	96.2	8,183	5.5
Rural	8,990	93.7	8,230	10.9
Urban	4,056	93.3	4,094	20.7
Total	13,046	93.6	12,324	14.1

B. Children and Young Adults (ages 10 to 19)

Age				
10	670	14.5%	566	7.2%
11	525	20.0	529	5.7
12	593	30.2	576	9.6
13	547	33.6	504	10.3
14	542	43.4	510	14.3
15-19	2,391	68.7	2,486	26.6
White	4,503	43.1	4,400	13.1
Black	765	65.5	771	43.7
Native	4,949	45.9	4,877	16.7
Foreign	319	53.6	294	32.7
Unmarried	5,246	46.2	4,896	18.1
Married	22	95.5	275	10.2
At School	2,830	24.7	2,606	5.2
Rural	3,956	48.5	3,749	15.4
Urban	1,312	39.9	1,422	23.5
Total	5,268	46.4	5,171	17.7

Source: Public Use Sample of the 1880 Census (Ruggles and Menard, 1991). LFPR: percent reporting a gainful occupation. At School: attended school during the census year.

Appendix Table 2

Occupation Regressions: Adult Males in 1900

A. White Collar

	Prof./Tech.		Managerial		Clerical/Sales	
	ß	t-stat	ß	t-stat	ß	t-stat
Constant	0.046	6.263	0.041	4.287	0.138	13.571
Black	-0.014	-2.870	-0.041	-6.669	-0.061	-9.321
Age						
20-24	-0.021	-4.423	-0.042	-6.940	0.017	2.596
25-29	0.002	0.415	-0.028	-4.757	0.008	1.337
30-34	-0.001	-0.151	-0.010	-1.653	0.002	0.374
40-44	-0.003	-0.725	0.014	2.320	-0.009	-1.310
45-49	-0.003	-0.511	0.009	1.306	-0.009	-1.269
50-54	0.008	1.446	0.025	3.544	-0.005	-0.654
55-59	0.066	0.988	0.005	0.616	-0.001	-0.176
Married	-0.007	-2.436	0.016	4.398	-0.022	-5.544
Foreign	-0.026	-8.233	-0.014	-3.545	-0.056	-12.822
Literate	0.027	6.135	0.045	7.980	0.033	5.437
Urban Location						
Urb2	-0.016	-2.928	-0.020	-2.972	-0.064	-8.756
Urb3	-0.023	-4.464	-0.041	-6.009	-0.104	-14.423
Urb4	-0.014	-3.092	-0.019	-3.323	-0.072	-11.985
Urb5	-0.022	-6.321	-0.052	-11.291	-0.125	-25.614
Region of Residence						
MA	-0.007	-1.338	0.007	1.079	0.001	0.150
ENC	-0.003	-0.562	0.014	2.092	0.015	1.970
WNC	-0.002	-0.387	0.022	2.972	0.014	1.683
SA	-0.006	-1.011	0.030	3.665	0.023	2.686
ESC	-0.011	-1.602	0.028	3.263	0.013	1.430
WSC	-0.005	-0.755	0.023	2.623	0.033	3.542
MN	0.011	1.195	0.011	0.888	-0.002	-0.140
PAC	-0.001	-0.151	0.030	3.041	0.045	4.163
Dep.var.-Mean	0.037		0.063		0.075	
R^2	0.009		0.024		0.052	

B. Blue Collar

	Skilled		Semi-skilled		Unskilled	
	ß	t-stat	ß	t-stat	ß	t-stat
Constant	0.183	13.407	0.176	14.582	0.301	20.629
Black	-0.047	-5.359	-0.009	-1.167	0.140	14.820
Age						
20-24	-0.027	-3.074	0.019	2.461	0.009	0.983
25-29	-0.016	-1.890	0.015	2.067	0.010	1.094
30-34	-0.006	-0.770	-0.002	-0.233	0.007	0.755
40-44	-0.003	-0.393	-0.017	-2.172	-0.015	-1.549
45-49	-0.021	-2.208	-0.034	-4.040	-0.015	-1.478
50-54	-0.005	-0.468	-0.048	-5.332	-0.033	-3.008
55-59	-0.013	-1.149	-0.059	-5.888	-0.049	-4.035
Married	0.022	4.097	0.013	2.635	-0.052	-9.063
Foreign	0.016	2.721	0.056	10.824	0.089	14.157
Literate	0.068	8.440	-0.0005	-0.070	-0.110	-12.784

Appendix Table 2 (continued)

Urban Location						
Urb2	-0.054	-5.494	0.002	0.249	0.020	1.890
Urb3	-0.109	-11.321	-0.045	-5.243	-0.021	-2.044
Urb4	-0.064	-7.983	0.004	0.520	0.028	3.254
Urb5	-0.127	-19.399	-0.049	-8.507	-0.023	-3.314
Region of Residence						
MA	-0.001	-0.071	-0.024	-2.814	0.014	1.382
ENC	-0.014	-1.392	-0.064	-7.353	-0.005	-0.495
WNC	-0.048	-4.420	-0.095	-9.914	-0.023	-1.948
SA	-0.022	-1.942	-0.066	-6.495	-0.044	-3.549
ESC	-0.050	-4.094	-0.077	-7.116	-0.090	-6.881
WSC	-0.057	-4.575	-0.119	-10.719	-0.068	-5.037
MN	-0.014	-0.825	0.067	4.451	-0.020	-1.125
PAC	-0.046	-3.240	-0.037	-2.892	-0.016	-1.057
Dep.var.-Mean	0.146		0.109		0.172	
R^2	0.052		0.044		0.046	

C. Service and Farm

	Service		Farm Operator		Farm Laborer	
	ß	t-stat	ß	t-stat	ß	t-stat
Constant	0.023	3.296	-0.047	-3.153	0.138	12.078
Black	0.071	15.515	-0.078	-8.082	0.039	5.332
Age						
20-24	0.013	2.897	-0.088	-9.318	0.120	16.526
25-29	0.010	2.341	-0.033	-3.597	0.031	4.421
30-34	0.018	4.207	-0.021	-2.302	0.012	1.737
40-44	0.017	3.709	0.021	2.148	-0.005	-0.657
45-49	0.015	2.962	0.065	6.227	-0.006	-0.798
50-54	0.007	1.291	0.063	5.719	-0.013	-1.537
55-59	0.011	1.807	0.122	9.788	-0.020	-2.145
Married	-0.009	-3.351	0.172	29.400	-0.133	-29.534
Foreign	-0.001	-0.462	-0.058	-9.101	-0.004	-0.887
Literate	0.026	6.197	-0.025	-2.828	-0.062	-9.300
Urban Location						
Urb2	-0.036	-7.159	0.104	9.687	0.064	7.870
Urb3	-0.051	-10.139	0.244	23.114	0.150	18.572
Urb4	-0.034	-8.107	0.108	12.278	0.063	9.298
Urb5	-0.050	-14.591	0.316	44.259	0.132	24.044
Region of Residence						
MA	0.016	3.232	0.003	0.306	-0.010	-1.281
ENC	0.013	2.513	0.042	3.840	0.003	0.355
WNC	0.006	1.052	0.115	9.720	0.011	1.177
SA	-0.002	-0.309	0.077	6.130	0.011	1.116
ESC	-0.009	-1.409	0.192	14.364	0.004	0.378
WSC	0.001	0.156	0.174	12.653	0.019	1.762
MN	0.010	1.163	-0.043	-2.343	-0.019	-1.333
PAC	0.020	2.733	-0.011	-0.712	0.016	1.360
Dep.var.-Mean	0.034		0.256		0.108	
R^2	0.027		0.258		0.142	

Source: public use sample of 1900 census

Notes: Prof./Tech.: professional or technical occupation; URB2=1 if resident of

county with a city of population 10,000 or more and adjacent to an "urbanized" county (an urbanized county contains a city of population 50,000 or more), 0 otherwise; URB3=1 if resident of a county with no city of population 10,000 and adjacent to an urbanized county, 0 otherwise; URB4=1 if resident of a non-adjacent county (not adjacent to an urbanized county) with a city of 10,000 or more, 0 otherwise; URB5=1 if resident of non-adjancent county with no city of population 10,000 or more, 0 otherwise; MA: MidAtlantic; ENC: East North Central; WNC: West North Central; SA: South Atlantic; ESC: East South Central; WSC: West South Central; MN: Mountain; PAC: Pacific. Left-out age dummy is 35-39; left-out urban dummy is URB1 (=1 if resident of an urbanized county, 0 otherwise); left-out region is New England.

Figure 1
Real Wages, 1860-1900

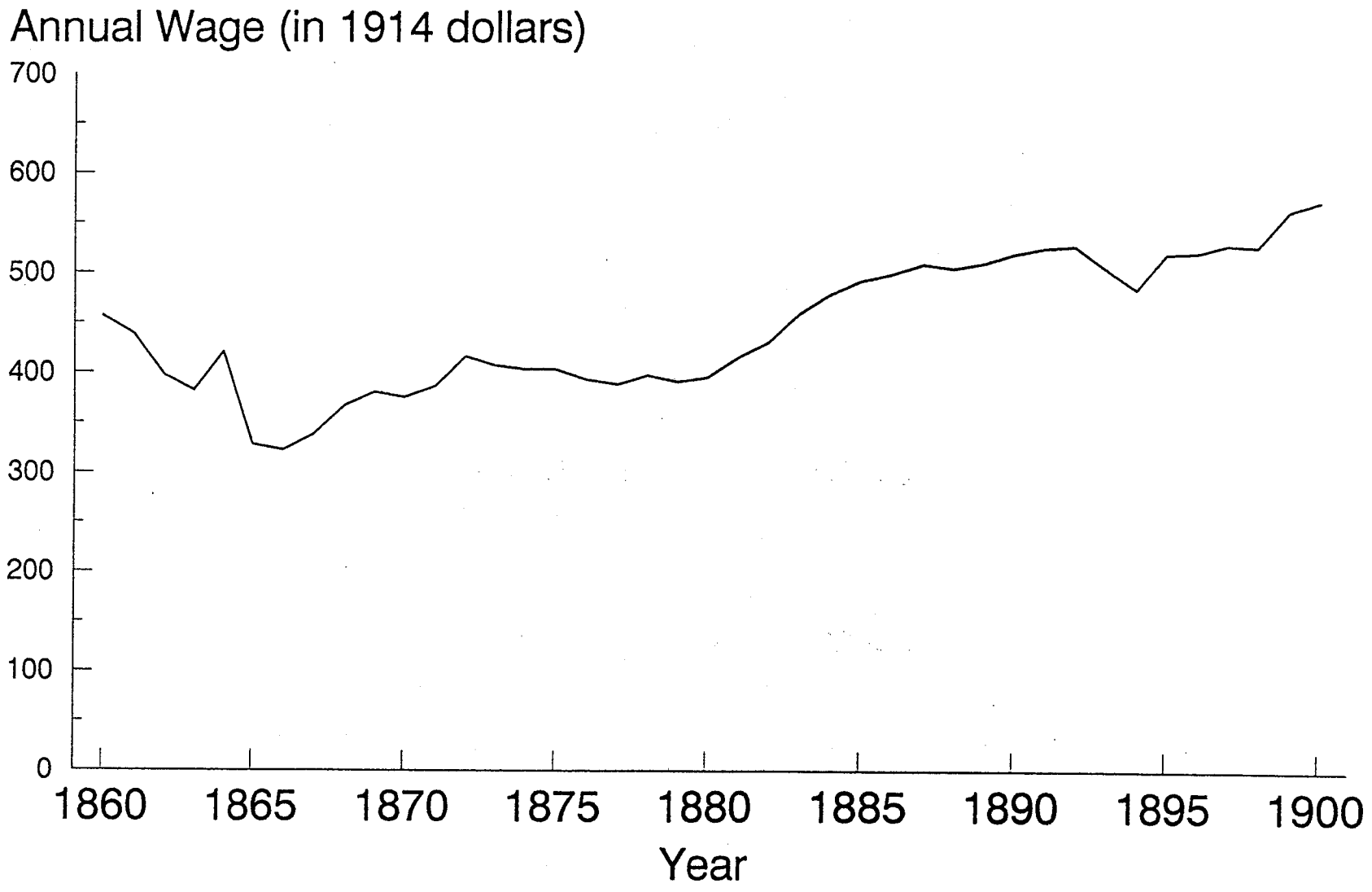
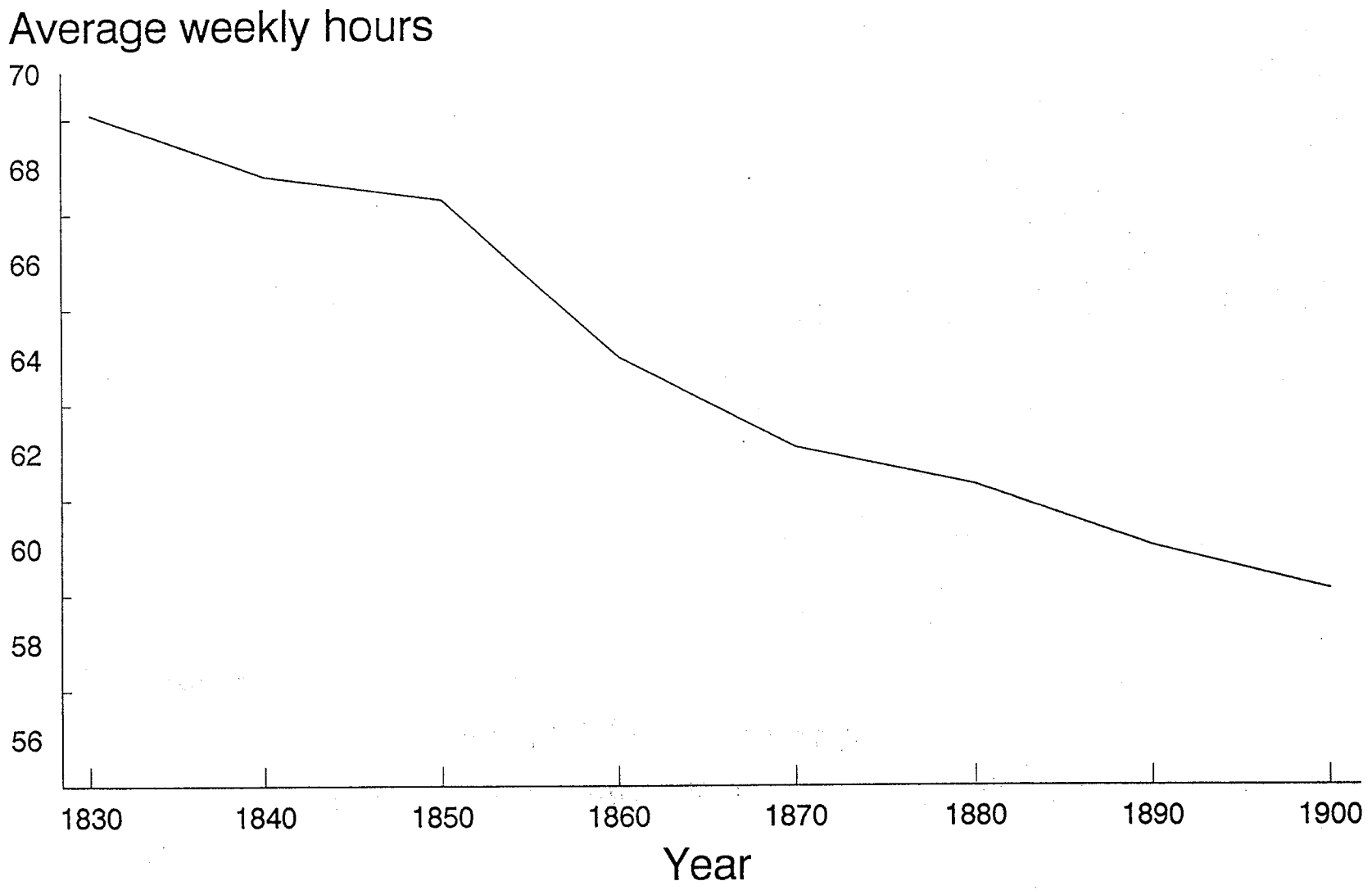


Figure 2
Average Weekly Hours in Manufacturing



Note to Figure 1:

Source: Historical Statistics, series A-736, p. 165

Notes to Figure 2:

The points in the figure are as follows:

1830	69.1 hrs.
1840	67.8
1850	67.3
1860	64.0
1870	62.1
1880	61.3
1890	60.0
1900	59.1

Source: computed from Whaples, The Shortening of the American Work Week, p. 33. The figures for 1840-1880 are unweighted averages combining the Weeks and Aldrich reports, as computed by Whaples.