

American Labor in the 20th Century

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The 20th century was a remarkable period for the American worker, as wages rose, fringe benefits grew, and working conditions improved. Even though many statistics were sketchy at the beginning of the century, the picture is clear: The American workforce was much better off at the end of the century than it was at the beginning. The statistics used to understand the condition of working Americans also improved over the course of the century, as we discuss in these articles excerpted from the *Report on the American Workforce* (U.S. Department of Labor, 2001).

Comparison of the American workforce at the end of the 20th century with that at the beginning shows numerous changes. Some of these are dramatic; others less so. Many of these changes are well known, but some are not. In certain cases, statistical data are lacking to make quantitative comparisons between the beginning and end of the century; but most of the changes are discernible, nevertheless.

The size of the Nation's workforce increased roughly six fold during the 20th century. The workforce registered 24 million in 1900 with those aged 10 and above reporting a gainful occupation;¹ in 1999 it was 139 million (aged 16 and older).² But it is not just the sheer numbers that are striking. The composition, compensation, workplace, and very nature of work also changed during the century.

Over the course of the 20th century, the composition of the labor force shifted from industries dominated by primary production occupations, such as farmers and foresters, to those dominated by professional, technical, and service workers. At the turn of the century, about 38 percent of the labor force worked on farms. By the end of the century, that figure was less than 3 percent. Likewise, the percent who worked in goods-producing industries, such as mining, manufacturing, and construction, decreased from 31 to 19 percent of the workforce. Service industries were the growth sector during the 20th century, jumping from 31 percent³ of all workers in 1900 to 78 percent⁴ in 1999.

The labor force composition shifted in other ways too. Female participation in the labor market grew dramatically in the 20th century. In 1900, only 19 percent⁵ of women of working age participated in the labor force, whereas 60 percent⁶ of them did in 1999. Furthermore, there was a marked change in female occupational employment. In 1900, only 1 percent of the lawyers and 6 percent of the Nation's physicians were women.⁷ In 1999, the figures were 29 percent for lawyers and 24 percent for physicians.⁸

Child labor was common at the turn of the century, and many families needed the income earned by their children to survive. The 1900 census counted 1.75 million individuals aged 10 to 15 who were gainful workers.⁹ At that time, these children comprised 6 percent of the labor force. There were no national laws that governed child labor, and while some States enacted and enforced such laws, most did not. By 1999, Federal and State law regulated child labor; and Federal law effectively prohibited full-time workers under the age of 16.

Statistics are sparse on minority participation in the labor force at the turn of the century, even by the standards of the day. Using the terminology of the day, census data show that the nonwhite workforce numbered a little under 3.8 million in 1900. This was about 14 percent of the labor force.¹⁰ In 1999, the black workforce numbered 16.5 million, or about 12 percent, of the labor force.¹¹ There were also American Indians, Japanese, and Chinese in the labor force at the turn of the century, but their numbers were few compared with the Negro.¹² By 1999, the other minority groups had increased, but blacks remained the largest racial minority group.

In 1900, per capita income (in 1999 dollars) was \$4,200; it was about \$33,700 in 1999.¹³ The average hourly pay of manufacturing production workers in 1999 was \$13.90; in 1909, the first measured year, it was about \$3.80 (in 1999

dollars).¹⁴ In addition to wages and salaries, benefits comprised a major part of employee compensation at the end of the 20th century. Statistics show that benefits averaged \$5.58 per hour or 27.5 percent of total compensation in 1999.¹⁵ Benefit data are not available for the beginning of the century, but benefits were minimal if available at all to workers in the industrial economy. One compensation series shows that benefits accounted for a little more than 1 percent of total compensation in 1929, the first year measured.¹⁶ Wages and salaries improved during the course of the century, although in *real* terms they seem to have leveled off during the last quarter of the century. If total compensation wages, salaries and benefits is examined, the trend remains positive.

The average workweek changed dramatically during the 20th century. In 1900, the average workweek in manufacturing was 53 hours,¹⁷ and in 1999 it was about 42 hours.¹⁸ But the decline was not steady, as the workweek is very sensitive to business conditions. During the Great Depression, the average number of hours per workweek for production workers in manufacturing dropped as low as 34.6. During World War II, it rose to 45.2 hours at one point. After the War, it stabilized at about 40 hours per week. The normal range for the four decades after World War II was 39 to 41 hours per week, but the factory workweek exceeded 41 hours for most of the 1992-1999 period.¹⁹

The number of hours at work varies by industry sector, as well as in response to the state of the economy. In 1999, the weekly average for the total private sector was 34.5 hours; and the average for the total goods-producing sector was 41.0 hours. The retail trade sector average workweek was 29 hours, wholesale was 38.3, construction was 39.1, and mining was 43.8. Average retail trade hours, for example, have shown a fairly constant drop since 1947, as industry added more part-time workers.²⁰ Mining hours, on the other hand, rose over that period. Workweeks in some sectors, such as manufacturing and construction, are impacted by changes in the economy; and many sectors, including retail trade and construction, are affected by seasonal changes.

Workplace safety improved dramatically during the 20th century. Almost 1,500 workers²¹ were killed in coal mine accidents in 1900. However, in 1999, the figure²² was 35. And it was not just coal mines that were unsafe. There were 2,550 railroad workers²³ killed in 1900, compared with 56 in 1999.²⁴

These two industries were picked because of data availability, as fatality statistics are not available for most industries at the turn of the century. Moreover, injury data are not available at the beginning of the century for *any* industry. Some national injury data were collected in 1911, but detailed statistics were not available until later in the century. Whether accidents are fatal or not, statistics indicate that they are less common, and the workplace is a much safer place, for the worker at the end of the century than at the beginning.

If an employee was injured on the job in 1900, his only recourse for compensation was to sue for damages. Such lawsuits were generally unsuccessful. It is estimated that at that time only 15 percent of workers injured on the job were successful in obtaining any damages under common law.²⁵ By 1999, there were a number of government programs that assisted those injured on the job. Long-term disability payments, Worker's Compensation, and other provisions in statute or contracts provided safety nets for the worker in 1999 that did not exist in 1900.

Unemployment is estimated at 5 percent²⁶ in 1900; in 1999 it averaged 4.2 percent.²⁷ While these two figures are not much different, they reflect very different dynamics. Data from four States—California, Kansas, Maine, and Michigan—and the 1910 census suggest that workers around the turn of the century faced a high probability of being laid off or unemployed sometime during the year. But the length of time one was unemployed was likely to be shorter than it was at the end of the century.²⁸ In 1999, the median duration of unemployment was 6.4 weeks.²⁹

There were 19 business cycles in the 20th century.³⁰ As a result, the century experienced periods of very low unemployment and periods of extremely high unemployment. Between 1900 and 1908, the unemployment rate fell below 3 percent. Later in the century, rates above 8 percent were recorded during recessions, such as those in 1915, 1921, 1975, and 1982. The highest rates of unemployment came during the Great Depression, when there were rates above 20 percent for several years. In 1933, there were more than 12 million workers unemployed; and the unemployment rate averaged 24.9 percent. More recently, double-digit unemployment rates were recorded during parts of 1982 and 1983, but there was a fairly steady decline from 7.8 percent in mid-1992 to 4.1 percent at the end of 1999.³¹

Forces Of Change

What forces underlie the changes of the workforce in the 20th century? Technology, capital, demography, immigration, education, and government intervention are often mentioned. In most cases, it is impossible to point to a single force or action that led to changes in the workforce. Most changes reflect the confluence of several factors or events.

Technology entered the workplace in a massive way in the 20th century. The list of technological improvements in the workplace in the last century is almost endless: communication devices, measuring devices, computer controlled equipment, the x-ray, wind tunnel, arc welder, circuit breaker, transistor, geiger counter, laser, neon lamp, teletype, fiber optics, stainless steel, and the atomic clock. The list goes on and on. At the turn of the century, only 5 percent of the Nation's factories used electricity to power their machines.³² However, by the end of the century, electrical powered machines were omnipresent; and heating, air conditioning, and air filtration were common in the workplace. And technological improvements often resulted in improved safety in the workplace, as technology replaced the worker in some of the more dangerous tasks.

Additionally, technological improvements that entered the home in the 20th century led to major changes in the workplace, as more homemakers were able to shift some of their time from home production to paid jobs. At the same time, new industries were created to serve the home; and existing industries expanded. Electricity was in less than 10 percent of the Nation's homes at the turn of the century, but it was almost universal by the end of the century.³³ New machines introduced in the home in the 20th century included the refrigerator, dishwasher, clothes washer, dryer, iron, vacuum cleaner, microwave oven, automatic toaster, electric razor, and electric hairdryer. In addition, there was prepackaged food, frozen food, and a host of other convenience items. The list could extend for many pages. Expansion of the paid workforce was certainly facilitated by these labor-saving goods and devices that were introduced into the home in the 20th century.

Likewise, technological improvements have worked their way throughout the economy. Medical advances have extended the life span of individuals and have led to fewer and less severe illnesses, allowing workers to work longer with fewer debilitating illnesses. Those injured on the job were more likely to return to work sooner. There was a host of new drugs and medical procedures; and new contraceptives facilitated family planning, especially impacting women workers. Major changes in transportation, primarily the use of the automobile, led to massive shifts in the location of the workplace. Factories were resettled to areas of cheap land and built on single levels. No longer were factories tied to the city. The explosion of communications permitted further dispersal of the workplace. The automobile also led to dispersion of the home and shopping. Computers were a major factor in the economic growth of the last decade of the 20th century, but the overall importance of computers in the economy and workplace will not be known for decades.³⁴

To put the new technology to work often required massive amounts of capital. In 1996, for example, investment in information technology per worker was \$29,200 for telecommunications; \$7,600 for real estate; and \$4,600 for railroads.³⁵ While real capital input increased 3.8 percent per year between 1948 and 1998 for the private sector, information equipment and software increased 11.4 percent per year; and computers and related equipment software increased 27.8 percent per year.³⁶ In 1999, the economy consumed over one trillion dollars of fixed capital. Without capital, technology would not have made its way into the workplace.

Changes in the demographics of the population in the 20th century had a profound impact on the workplace. The population aged, became more diverse, and grew dramatically. In 1900, the life expectancy of a newborn was 47.3 years;³⁷ in 1999 it was 77.0.³⁸ In 1900, 80 percent of American children had a working father and a stay-at-home mother, however, by 1999, that figure was only 24 percent.³⁹ The population at the beginning of the century was 76 million, but approached 280 million by the end of the century. (The official 1999 Census count is 273 million, but the 2000 Census counted 281 million).⁴⁰

Immigration was crucial to the development of the U.S. economy and the workplace in the 20th century. In 1900, 448,572 individuals passed through immigration control, and for the decade as a whole (1900-9) there were 8.2 million.⁴¹ Those of work age had come to find employment and a stake in a better job. Most were laborers or listed no occupation on their entry documents.⁴² (Recent numbers are only slightly larger and, as a proportion to the overall population, a great deal smaller.) In 1998, there were 660,477 legal immigrants; and for the decade as a whole (1990-99), there were close to 10 million.⁴³ During

the 1930s and 1940s, in contrast, immigration dropped to less than 100,000 per year, as a result of the strict quota system established under the National Origin Act of 1929. But the Immigration and Naturalization Act of 1965 removed racial quotas and opened the doors to a large number of non-European immigrants. Immigration laws had a major impact on the labor force. Indeed, one observer suggests "that quotas restricting the less-skilled immigrant labor were the single most important piece of labor legislation in the twentieth century."⁴⁴

However, it was not just immigration that changed the workplace in the 20th century. Education played an important role in the advancement of the individual worker, the workforce, and the economy; and during the 20th century, there was a steady increase in educational attainment. In 1900, less than 14 percent of all Americans graduated from high school.⁴⁵ By 1999, that figure had increased to 83 percent.⁴⁶ In 1910, the first year for which estimates are available, less than 3 percent of the population had graduated from a school of higher learning.⁴⁷ By 1999, the figure was 25 percent.⁴⁸ Furthermore, increased education resulted in substantial monetary payoff for the individual worker. Men with college degrees earned 62 percent more and women 65 percent more in hourly compensation than did those with a high school degree at the end of the century (1997).⁴⁹ A substantial part of the growth of the economy is attributable to increased education.⁵⁰

There is no question about the increasing role of government during the 20th century.⁵¹ But what impact did government intervention have on the workplace and on the workforce? This question is not easily answered. Even when there was workplace legislation, one cannot ascribe changes in the workplace to changes in the law. As one observer notes, "government intervention often reinforced existing trends, [such as in the case of] the decline of child labor, the narrowing of the wage structure, and the decrease in the hours of work."⁵² In addition to workplace legislation, there was legislation directed at larger societal issues that had a dramatic impact on the workplace.

A number of pieces of legislation dealt with the workforce and workplace in the 20th century. In addition, there was general societal legislation that had an impact on the workforce and the workplace, although the focus of the legislation was elsewhere. Social insurance legislation, such as Social Security and Medicare, had a profound affect on the workforce and workplace by providing many workers a retirement stipend and health insurance for the first time. Other legislation that had a profound impact on the workforce includes the 1990 Americans with Disabilities Act, the post-World War II GI Bill, and the Civil Rights Act. Studies show that the Civil Rights Act of 1964, specifically Title VII, had an important affect on hiring of black workers.⁵³ Other actions that impacted the workforce indirectly include the funding and building of the interstate highway system, funding of research and development, and enforcing patent and copyright laws.

Counting The Changes

Much of what we know about the improvements in the workforce came from the advancements that were made in counting the workforce in the 20th century. Important developments came in methodology and data gathering. In addition, there was a major expansion of the data collection effort. Here, we briefly touch on some of these improvements and the underlying forces that set the stage for these developments. Details are discussed in the articles of this issue.

Statistics are often lacking on the American workforce at the beginning of the 20th century as workforce data were restricted largely to special studies that addressed subjects like child labor, immigrant labor, and pensions. Rudimentary statistics were produced on wages and hours in manufacturing in 1904, but these series were discontinued in 1908 for more investigative reporting.⁵⁴

Wage and hours surveys were resumed in 1913, but resources permitted only 10 industry studies every other year.⁵⁵ These studies focused on industries, or industry groups, such as cotton, wool and silk. For each study, data were collected and published on hourly wage rates, full-time weekly earnings, fluctuations in employment during the year, volume of employment, and productivity. In 1916, the Bureau of Labor Statistics (BLS) began to publish monthly employment series for five industries.⁵⁶ This was the start of the establishment series on employment and payrolls.

Gaps in labor force statistics became apparent, with the mobilization for World War I. Federal statistics were "woefully incomplete and inadequate" according to Bernard Baruch, Chairman of the War Industries Board.⁵⁷ Wartime needs led to a massive expansion of statistical data. Prices and wages were of immediate concern, since wage rates needed to be adjusted

to keep pace with inflation. In 1918, wage and hour surveys were expanded to 780 occupations in 28 industries, covering 2,365 establishments in 43 States.⁵⁸ There was also increased interest in information on strikes and lockouts. With the termination of the war, statistical budgets were trimmed, and the wage and hour program was reduced to its prewar level.

The next surge of interest in labor statistics came in the latter part of the 1920s. By 1927, there was monthly reporting of employment on 54 manufacturing industries covering 11,000 establishments; and in 1928-29, agriculture, mining, construction and trade were added to the reporting. Several studies addressed the issue of how to collect unemployment statistics, a continuing and unresolved issue at that time.⁵⁹

The Great Depression provided the next great push to improved labor force statistics. Modern-day employment statistics, unemployment statistics, occupational statistics, and the like grew out of the Great Depression. The creation of the Central Statistical Board, in 1933, led to a number of new statistical initiatives. One created the Interdepartmental Committee on Industrial Classification, in 1937, that resulted in the creation of the Standard Industrial Classification (SIC) system. This was the first time that the United States had produced a comprehensive industry classification system. Until that point, industry data collection was pretty much ad hoc, responding to immediate needs and what could be collected, given the time and available funding. The result was different data definitions and overlapping data collection. The SIC underwent four major revisions before being replaced in 1997 by the North American Industry Classification System (NAICS).

The Great Depression spawned a number of new laws, such as the Fair Labor Standards Act, which required new statistics on the labor force. Collection of unemployment statistics remained an unresolved issue in the 1930s. After many studies and false starts a household survey was undertaken; and national unemployment estimates were produced, for the first time, in 1940. In 1938 the Central Statistical Board and the American Statistical Association moved to develop an occupational classification system that reflected the similarity of work, education requirements, skill levels, and socioeconomic class. This new classification was used in the 1940 census and the development of the Occupational Outlook Program. With the outbreak of World War II, the statistical focus changed from recession and depression to wartime needs.⁶⁰

There was need for greatly expanded labor force statistics in World War II, as in World War I. United States statistical data collection and analyses shifted to focus on defense industries and the wartime economy. Wages and prices were controlled, and many items were rationed. At the beginning of the war, employment and wage data were collected on 90 industries; at the end of the war, data were collected on 180 industries. New defense-related industries sprung up overnight.⁶¹ There was need for detailed, recurring data on price and wage changes. Occupational wage studies were expanded and refocused on the occupational skills needed by private industry to meet military needs. In order to set and control wages, wage reports were broken down by area and occupational group. Thousands of interplant wage inequity cases had to be heard and resolved, which required additional labor force information. The Cost of Living Index became a contentious political issue during the Second World War, because it was used to adjust and set wages. Basic issues, including changes in the quality of products and substitution affects, were the same ones that continue to torment developers of these indexes today. In 1945, the name of the index was changed to the Consumer Price Index.⁶² The World War II era also saw the expansion of productivity studies and monthly reporting of industrial injuries.

Statistical data collection and reports were cut back following the conclusion of WWII; in fact, BLS staff was cut by 40 percent.⁶³ Data collection activities that remained were redirected from wartime to post-war problems. At about the same time, the Council of Economic Advisers and the Joint Economic Committee were created. Almost immediately, these two organizations focused attention on gaps in workforce data, leading to further changes in data collection and analysis. Worker budget estimates were revised and calculated for large cities, benefit studies were undertaken, and industry productivity studies were re-instituted. In 1948, General Motors and the United Auto Workers agreed to use the CPI to establish a wage-escalator clause, which gave new emphasis to the CPI, at a time when there was serious thought in cutting back funding of the index.⁶⁴ Occupational studies initially focused on veterans' re-entry into the labor force; later, studies reverted to their prewar focus of providing data for counseling young people in their choice of careers.

With the advent of the Korean War, there were demands to update much of the statistical program, especially the price and wage statistics which were needed to set price and wage guidelines. A revised CPI was instituted; and collective bargaining

agreements were tracked, summarized, and published. The Wage Stabilization Board used the wage data to establish guidelines.⁶⁵

The Vietnam war did not require the massive development of new data, as had the earlier wars of the 20th century. But the so-called "War on Poverty" introduced a whole new set of statistical requirements for information on the poor, unemployed, and minorities. The 1963 Vocational Education Act required the States to develop information on future occupations. This led to the development of occupational statistics by industry.⁶⁶ Many of the revisions and improvements in data did not take place until the 1970s, when new income support and training laws prompted more detailed reporting. The President's Concentrated Employment Program led to a series of studies on employment in poverty areas, and BLS introduced a quarterly series that tracked the situation in poverty areas in the United States. The Comprehensive Employment and Training Act of 1973 required information on unemployment and poverty by detailed geographic area.⁶⁷ This was also a period when inflation was a major economic and political issue, and the Cost of Living Council was established to provide guidelines on wage and price escalation that put renewed emphasis on price, wage and productivity statistics.⁶⁸

The rest of the 20th century saw continuing improvement of workforce statistical data. These changes were evolutionary. While the decennial census collected data on occupations, it was not until 1977 that the first Standard Occupation Classification manual was published. The manual grew out of the Bureau of the Budget's Office of Federal Statistical Policy and Standards initiative to develop a single occupational classification system that would be used by all major U.S. statistical organizations. It was at this time that occupational statistics were updated through a series of industry studies, and an industry-occupation matrix was developed for the first time. These statistics were necessary ingredients to the preparation of the industry and occupational projections. But this was not all. There were revisions in the industry and occupational classifications and additional minority and demographic data collected. Wage data has also undergone major expansion to capture total compensation. In 1980, the Employment Cost Index included benefits for the first time; and indexes were calculated and presented by occupational group and major industry.⁶⁹

What Comes Next?

The following articles discuss workplace compensation, how it evolved, and how it was measured in the 20th century.

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End Notes

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