What are the main characteristics of American workers? What types of jobs do they do? Who does what? It turns out that the answers to these questions have been changing, in some cases dramatically.

For starters, the basic demographic makeup—age, gender and race—is very different now than it was nearly 70 years ago. Second, the educational levels of workers have been increasing dramatically. Third, the occupations or types of jobs employing American workers are very different now relative to what American workers were doing just a few decades ago.

In this article, we explore these shifts in the American labor force and workplace. We show that the identity, education and occupations of the average American worker have all been changing. We also show that there are big changes in who does what, especially in the higher-skilled and higher-paying occupations.

Overall, the picture emerging from the data is very clear: American workers are older, more educated and more diverse. Because skilled workers are more abundant, the employment opportunities have been shifting to higher-skilled occupations, and this movement has taken place for workers of all genders and races. Workers with lower- or even middle-level skills are likely to face relatively tougher times because their remaining labor market opportunities are in the lower-skilled occupations.

Demographics and Education

To characterize American workers over the years, we collected individual level data from IPUMS-USA on the age, gender, race, educational level and current occupation of workers. For ease of use, we categorized the nine racial groups in the database into four broader groups: white, black, Asian and other. Similarly, for educational levels, we grouped the 11 categories in the data into five broader groups representing the maximum possible level of education attained by these individuals: primary or less (nursery through grade 8), secondary incomplete (grades 9-11), secondary complete (grade 12), college incomplete (one to three years of college), and college complete or more (four or more years of college).

The table contains the basic demographic information. A number of salient features are evident. First, female workers almost doubled their share in the labor force; nowadays, they are close to being half of the working population. Similarly, nonwhites as a whole more than doubled their share, accounting for nearly one in four workers. An even more dramatic increment is in terms of schooling levels: In 1950, close to 40 percent of workers had only primary schooling (completed or less); today, the U.S. has only a negligible fraction of workers with such little formal education. On the opposite extreme, from having less than 18 percent of workers with at least some college, the U.S. now has about 60 percent of the labor force with either some college education or a completed college education.

A closer inspection of the data reveals that much of the changes took place in the 1970s and 1980s, when the baby boomers entered the labor market. Figure 1 shows the close relationship between the average age of American workers and the fertility rate of previous decades.

The relatively high fertility rates of the 1950s and 1960s led to an interesting pattern in the age of active workers...
over the years. First, average ages tended to increase between 1950 and 1960 as young female workers in the 1950s left the labor force to rear children. Later, however, when the baby boomers’ children entered the labor force in the 1960s, the average age started to decline. Yet, with the lower fertility rates observed since the late 1970s and early 1980s, the average American worker started aging, a trend that has remained up until at least 2015, the last year for which we have data.

To be sure, the baby boomers had more formal education than their parents, but the boomers’ education has since been eclipsed by that of their children. It is easy to see why the 1970s and 1980s were years of rapid expansion in the average educational level of American workers. After that, a steady increase in education has been sustained up until 2015, and it is expected to continue.

These changes in the educational level of American workers are significant enough that one would expect to see important changes in the structure of the economy, i.e., in the types of occupations in the economy and the types of workers filling those jobs. The data show this vividly.

Changes in Work
and in Who’s Doing What

We now explore the changes in what the American workers do in the marketplace. To this end, we grouped workers into the following nine broad groups, ordered by their skill intensity: professional and technical workers; managers, officials and proprietors; sales workers; clerical and kindred; craftsmen; service workers; operatives; farmers and farm laborers; laborers.


<table>
<thead>
<tr>
<th>Year</th>
<th>Average Age</th>
<th>Male</th>
<th>Female</th>
<th>White</th>
<th>Black</th>
<th>Asian</th>
<th>Other</th>
<th>Primary or Less</th>
<th>Secondary Incomplete</th>
<th>Secondary Complete</th>
<th>College Incomplete</th>
<th>College Complete or More</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>37.7</td>
<td>72.6%</td>
<td>27.4%</td>
<td>90.0%</td>
<td>9.6%</td>
<td>0.3%</td>
<td>0.2%</td>
<td>38.8%</td>
<td>19.3%</td>
<td>24.3%</td>
<td>9.3%</td>
<td>8.4%</td>
</tr>
<tr>
<td>1960</td>
<td>40.1</td>
<td>68.0%</td>
<td>32.0%</td>
<td>89.8%</td>
<td>9.3%</td>
<td>0.6%</td>
<td>0.3%</td>
<td>29.4%</td>
<td>22.3%</td>
<td>28.4%</td>
<td>10.4%</td>
<td>9.6%</td>
</tr>
<tr>
<td>1970</td>
<td>39.3</td>
<td>62.9%</td>
<td>37.1%</td>
<td>89.2%</td>
<td>9.5%</td>
<td>0.8%</td>
<td>0.4%</td>
<td>17.3%</td>
<td>21.0%</td>
<td>35.4%</td>
<td>13.4%</td>
<td>12.8%</td>
</tr>
<tr>
<td>1980</td>
<td>37.4</td>
<td>57.8%</td>
<td>42.2%</td>
<td>87.7%</td>
<td>9.7%</td>
<td>1.8%</td>
<td>0.8%</td>
<td>8.3%</td>
<td>15.4%</td>
<td>38.4%</td>
<td>19.3%</td>
<td>18.6%</td>
</tr>
<tr>
<td>1990</td>
<td>38.3</td>
<td>54.7%</td>
<td>45.3%</td>
<td>83.1%</td>
<td>10.0%</td>
<td>2.9%</td>
<td>4.0%</td>
<td>3.8%</td>
<td>9.2%</td>
<td>33.2%</td>
<td>45.5%</td>
<td>8.2%</td>
</tr>
<tr>
<td>2000</td>
<td>40.0</td>
<td>53.6%</td>
<td>46.4%</td>
<td>78.8%</td>
<td>10.1%</td>
<td>3.8%</td>
<td>7.3%</td>
<td>2.9%</td>
<td>7.7%</td>
<td>38.1%</td>
<td>41.6%</td>
<td>9.7%</td>
</tr>
<tr>
<td>2010</td>
<td>43.1</td>
<td>52.3%</td>
<td>47.7%</td>
<td>76.8%</td>
<td>10.8%</td>
<td>5.3%</td>
<td>7.1%</td>
<td>2.8%</td>
<td>5.4%</td>
<td>33.8%</td>
<td>46.5%</td>
<td>11.5%</td>
</tr>
<tr>
<td>2015</td>
<td>43.5</td>
<td>52.7%</td>
<td>47.3%</td>
<td>74.9%</td>
<td>11.5%</td>
<td>5.9%</td>
<td>7.7%</td>
<td>2.5%</td>
<td>4.8%</td>
<td>32.8%</td>
<td>47.5%</td>
<td>12.3%</td>
</tr>
</tbody>
</table>

SOURCE: IPUMS.
(e.g., machine operators); farmers and farm laborers; and laborers.7

Figure 2 shows the shares of workers across the nine broad occupation categories in the data. For ease of presentation, we reported on the data only for the beginning, the middle and the end of the sample period. For each occupation, the first bar in each case corresponds to American workers in 1950, the middle bar corresponds to workers in 1980 and the last bar corresponds to 2015, the most recent year for the data.

Figure 2 shows important changes in what American workers do. First, there is a big shift toward professional and technical occupations and toward management. The first group almost tripled its share over all workers between 1950 and 2015, from 8.7 percent to 25.4 percent of all workers. The second group, i.e., the management positions, almost doubled its share, from 8.8 percent to 14.7 percent. Another occupation that expanded is service workers, a finding that is not surprising, given the well-known movement of the U.S. economy toward services and away from agriculture and manufacturing. This movement also explains the significant decline in craftsmen, operatives and farm workers.

Beyond these profound changes in the occupations or job types, we observed substantial shifts in the types of workers that are allocated across the different types of jobs. Each of the nine panels of Figure 3 shows the share of workers with different schooling levels in each of the nine broad occupation categories. Obviously, the educational level of the workforce was very different in 2015 relative to that of 1950 and even 1980.

Specifically, consider the notable difference in the schooling attainment of workers in professional and technical occupations between 1950 and 2015. In 1950, only half of these workers had completed a college degree. By 1980, those with college degrees already made up 60 percent of these workforces and by 2015 they accounted for 70 percent. In 1950, it was not uncommon to find workers with only a high school diploma in professional positions; in fact, one in 10 of these professional workers had not finished high school, and up to 6 percent of them did not have any secondary

**FIGURES IN THIS SERIES ARE CONTINUED ON NEXT PAGE.**
education at all. Formally or informally, this subset of professional workers must have accumulated technical knowledge on the job. As Figure 3A shows, this group of empiricist professionals had all but disappeared by 1980 and was completely gone in 2015.

Even more striking changes can be seen in workers occupying managerial jobs. In 1950, managers were predominantly workers with no formal college education: Individuals who had no more than a high school diploma accounted for more than three in four of American managers. (In 1950, 27.4 percent of managers had only primary education and only 11 percent of them had completed college.)

Figure 3B shows the drastic change that has taken place: In 2015, virtually all managers had completed at least secondary education, almost three-fourths of them had some form of college education and 46.4 percent of them had completed at least a college degree.

The movement toward higher levels of education can be seen also in all other occupations, albeit to a different extent. In all of them, there is an increasing share of college-educated workers and a decline in workers with primary education only. The main difference across occupations is in the incidence of secondary education (complete and incomplete) and in workers with some college education. For example, while in 1950 virtually no operative worker had any college education, in 2015 more than 30 percent of these operators had some college.

It is noteworthy that the agricultural sectors have attracted—or required—workers with higher levels of education. Nowadays, almost 31 percent of these workers have some college education. Notice that similar numbers apply to the group of laborers.

Even more so than in the case of operatives, this sharp decline appears even among farmers and laborers, a solid majority of whom have traditionally had only a primary school education.

**Top-Earning Occupations**

We now look more closely at the managerial and professional occupations, the two occupations that have been expanding at the fastest pace and that are the ones paying the highest salaries. Figure 4 breaks down the composition across gender and race groups for these two broad categories.

As the two panels of Figure 4 clearly show, both occupations have traditionally been performed predominantly by white workers and, up until recently, by predominantly white male workers. But that has changed profoundly. In 1950, white males accounted for more than 81 percent of all managers and for 51 percent of all professional and technical workers. Interestingly, the predominance of white males in both groups was even higher in 1960 and 1970, likely reflecting large numbers of younger, highly educated females leaving the marketplace to raise children. But by 2015, white males accounted for about half of the managers and for about 34 percent of professional workers.

The entry of highly educated white women is one of the main forces behind this change. From essentially being a rarity in the 1950s and 1960s—and even the 1970s—women in management positions accounted for more than 81 percent of all managers and for 51 percent of all professional and technical workers. Interestingly, the predominance of white males in both groups was even higher in 1960 and 1970, likely reflecting large numbers of younger, highly educated females leaving the marketplace to raise children. But by 2015, white males accounted for about half of the managers and for about 34 percent of professional workers.

Despite some ambiguity in the share of workers who have completed secondary school over the years, all occupations in the country have undergone a process of skill upgrade, namely the movement in which the same form of task, job or occupation is now performed by workers with higher skill levels. This is most evident when looking at the share of college-educated workers performing more and more of all these broadly defined categories of jobs and also when looking at the sharp decline in the share of workers with only primary school completed. This sharp decline appears even among farmers and laborers, a solid majority of whom have traditionally had only a primary school education.
We explored the substantial shifts in the American labor force and workplace over almost 70 years, showing that the identity, education, race and occupations of the average American worker have all been changing. We documented big changes in the types of jobs being done by American workers and on the assignment of jobs across workers with different educational levels and other characteristics.

The data discussed here provide a number of clear lessons. First, American workers are older, better-schooled and much more diverse in terms of race and gender. Second, employment opportunities have shifted to higher-skilled occupations. Third, there has been a generalized process of skill upgrading, as all occupations are employing workers with more formal education.

Needless to say, these changes have led to additional challenges for some groups of workers: Those with lower levels of education may be unable to find jobs in occupations that their parents held with much less formal schooling. For those with higher levels of education, they now have heightened competition from more individuals with higher education, including groups that were rarely represented in these ranks in the past, e.g., females and nonwhites.

Regardless of how much more challenging labor markets become for everyone, the aggregate productivity is higher when the country takes advantage of the talent of all the demographic groups and not just a subset of them.10

Alexander Monge-Naranjo is an economist at the Federal Reserve Bank of St. Louis. For more on his work, see https://research.stlouisfed.org/econ/蒙古--纳兰乔。胡安·伊格纳西奥·维塞伊诺是一名研究助理。