

The Coming Labor and Skills Shortage

Although future economic realities favor higher levels of education and training, and a broader array of skills, a reversal in longstanding demographic trends may make it difficult to fulfill those needs. The most powerful of those demographic trends is the retirement of the baby boom generation. Boomers are working today, but the first cohort of baby boomers has reached age 57, prompting a rapid retirement of workers from the American labor force during the next 20 years. That depletion is expected to be especially strong among the most educated and highly trained workers because those boomers have the greatest access to retirement income that supplements social security. By 2020, about 46 million baby boomers with at least some education and training beyond high school will be more than 57 years of age.

While successive generations have acquired more schooling, educational attainment has plateaued among American youth during the last several years in spite of a doubling in the college and high school wage premium since the early 1980s. Between 1980 and 2000, the share of workers with at least some education and training beyond high school increased by 20 percent. According to 2002 data from the Aspen Institute, if current rates of education and training persist, the share of Americans with at least some postsecondary education or training will only increase by 4 percentage points between 2000 and 2020. At the same time, even the relatively conservative projections of the Bureau of Labor Statistics suggest that during the next decade alone, about 30 percent of job openings will require workers with at least some postsecondary education or training. Moreover, the recent collapse of public budgets at a time when 4 million additional 18- to 24-year-olds are moving into their critical college-attendance years suggests that rates of postsecondary educational attainment will remain flat or decline. The result: an even more substantial shortage in skilled workers with at least some postsecondary education and training.

Defining an American workforce worthy to compete in a global market.

Broader context

Baby-boom retirements and flat educational attainment rates are especially troublesome in the context of broader demographic and employment trends. The U.S. workforce, whose size has increased by almost 50 percent during the past 20 years—or roughly 39 million workers—will slow its growth to 16 percent during the next several decades. Assuming moderate employment growth rates of 15 percent and a continuing increase in skill requirements on the job, the combined effects of those trends should result in significant labor shortages of at least 20 million workers, especially in jobs that require the most skill and provide the greatest economic value added. Two-thirds of the expected shortage in 2020 will likely arise in the most skilled jobs, resulting in a net deficit of workers with at least some college of about 14 million workers.

The present economic slowdown may actually accelerate the longer-term trends toward shortages of educated and skilled labor. During the 1990-1991 recession, companies aggressively used the pause to restructure production processes and to shift toward fewer workers using more sophisticated technology. That acceleration of structural change in the economy occurred again in the 2000-2001 recession. The increasing structural change during recessions leads to jobless growth when the recessions are over. Because of the productivity increases from restructuring, workers who are laid off don't get hired back when the reassertion of growth creates new demand for products and services.

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Growth creates demand for new hires in other industries, but it takes longer to equip and hire new people than it does to rehire former employees in their old jobs, companies, or industries. That's especially true since the 1990s, when roughly half of new hires are skilled beyond high school and command expensive equipment wages and benefits. Although the restructuring process results in slow job market recovery, it actually strengthens the trend toward upskilling in job requirements.

Retire later?

The current world economy includes cycles of growth and recession that hide deeper currents of constant structural change in favor of soft and hard technologies that require more employee autonomy and skill. The persistence of structural change in the face of sharply reduced labor force growth rates suggests tight labor markets for skilled workers at best and the possibility of skill shortages.

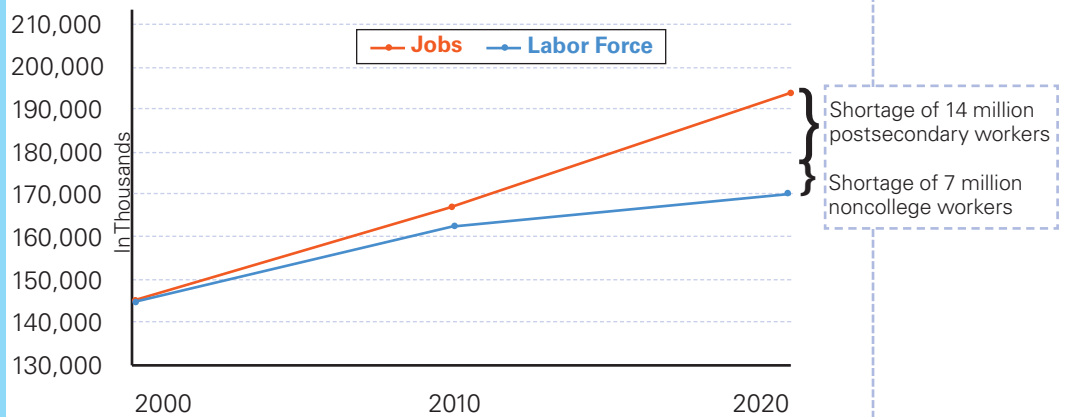
Many “not to worry” proposals offer advice on how to respond to the emerging skill deficits. For instance, they suggest stopping the retirement of baby boomers. According to the Employment Policy Foundation, increasing retirement ages to 1962 levels could decrease the expected worker shortage by one-third. However, that increase is most likely to come from those workers most dependent on social security payments for retirement. Those workers tend to be the lowest paid and least skilled.

Meeting the salary and benefits requirements of skilled senior workers is expensive. Perhaps the best bet to bring more skilled, married, middle class workers to the workforce would be to expand child-care assistance, but that's extremely expensive as well. Not to mention the fact that the politics of retiree benefits is still the “third rail” of American politics.

Large-scale skill-based immigration policies would be effective, but politically sensitive. Each year, fewer than one million legal immigrants come to America—less than one-half of 1 percent of the total U.S. population in a given year. It's estimated that increasing the number of immigrants each year by 30 percent, to about 1.3 million a year, could reduce the projected skill deficit by nearly one-third.

But while opening our borders might increase the size of the labor force, it wouldn't increase the size of the skilled workforce. Most immigrants to the United States are low skilled workers from Mexico and the

Labor Force Growth is Not Expected to Keep Pace With Job Growth Through 2020



Note: Labor force data have been adjusted to reflect multiple job holding.
 Source: Author's analysis and adaptation of data from Ellwood (2001), Fullerton and Tossi (2001), and Hecker (2001).

Caribbean. Moving toward a skill-based immigration would be unpopular with American workers in general and Hispanic families in particular. In addition, Hispanics are the electoral margin in most major cities and at least a dozen of the largest and fastest growing states.

American employers could continue to go offshore, but that would increase imports and trade deficits that are already dangerously high and threaten a run on the dollar. Anyone who wasn't asleep throughout the political season knows that offshoring, while perhaps a smart business practice, is bad politics.

Technology touch

Economists will tell you that technology will save the day by substituting for workers. Yet, technology only automatically substitutes for workers in mathematical equations. In the real economy, technology comes from research and development spending, and, ultimately, it has to be bought and paid for by individual companies. A quick review suggests that the R&D and purchasing costs that would be required to substitute for such a precipitous decline in skilled labor are far above current or historical rates.

Ultimately, stronger education and training poli-

cies will have to play a role if America is going to get the skilled workforce it needs. In addition, family supports will be necessary to maintain or increase labor market participation, especially among women. Higher minimum wages, more flexible benefits, and an expanded Earned Income Tax Credit also may be necessary to encourage labor force participation.

Skill and U.S. economic competitiveness

The ability of the United States to produce high levels of skilled workers is critical to the overall performance of its economy in global competition. The macroeconomic evidence on the role of education and training in improving productivity growth is supported by evidence at the local industry level. Sandra Black and Lisa Lynch noted in their 1996 article, "Human Capital Investments and Productivity," that increasing the education level of workers by one year increases productivity by 8.5 percent in manufacturing and 12.7 percent in nonmanufacturing industries.

Training affects productivity as well. Columbia economics professor Ann Bartel illustrates in her 1994 *Industrial Relations Review* article, "Productivity and Gains From the Implementation of Employee Training Programs," that one hour of training

can increase productivity five times as much as it affects wages. John Bishop, in his 1994 article, “The Impact of Previous Training on Productivity and Wages,” reports how formal employer-provided training has been shown to increase productivity by 10 to 19 percent.

A better-educated workforce also can have real fiscal impact. Sweden is one of the most literate countries in the world. If the distribution of skill in the United States mirrored that of Sweden, a back-of-the-envelope calculation suggests that gross domestic product could increase by US\$463 billion, providing as much as \$162 billion in additional federal, state, and local tax dollars.

Improving human performance at work begins with education because the highest returns to employer training result from training the most trainable—those with the best educational preparation. Although American educational performance is improving at home, scores on international tests are consistently subpar. According to 2001 data from the Organization for Economic Cooperation and Development, among youth aged 25 to 34, the United States has quietly dropped to sixth in the world in high school graduation rates behind Norway, Japan, Korea, Czech Republic, and Switzerland.

How can the United States’ mediocre educational standing in the world be reconciled with its economic success in the high-tech global economy? The answer is that the United States may not have, on average,

the world’s best stock of skills, but it is pretty good, and, because of its size, it has more top students. For instance, the United States’ population is approximately four times the size of that of France, Italy, and the United Kingdom, and three times the size of Germany. So, while on average the United States may be in the middle of the pack on international tests scores, because of its size it tends to have more high performers.

The student population in the United States is only twice as large as the Japanese school-age population, but the size advantage still prevails. In *International Comparisons on the Test of International Math and Science Achievement*, for instance, Patrick Gonzalez notes that in international math assessments among eighth-grade students, Japan ranks 5th in math and the United States ranks 18th. Sixty-four percent of Japanese eighth graders scored in the top quartile of international benchmarks in math, compared with 28 percent of American students. But because the eighth-grade population in the United States is twice as large as the eighth-grade population in Japan, there are 970,000 U.S. students in the top international quartile, compared with 928,000 Japanese eighth graders.

More is not always better. But oftentimes, four pretty good engineers tackling a business problem is better than one very good engineer working alone addressing that same issue. Similarly, four companies in the software business competing directly against each other are likely to produce better software than a single company.

Economics professors Guiseppe Bertola and Francine Blau report in the article “An International Comparison of Labor Market Outcomes” that a second advantage allows the United States to be the number one economy with a mediocre educational performance: its flexibility. In the United States, labor markets are flexible, which allows employers enormous agility in hiring, paying, and allocating workers. America’s agility provides an edge in the global race because it allows for making better use of talent.

In Europe and Japan, by comparison, access to jobs and pay is highly regulated by skill certification and seniority. Jobs are protected shelters from economic and technological change. Unemployed or underemployed workers are eligible for high levels of income assistance, pensions, and benefits. The

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result is job security, income security, and structural rigidity. But European and Japanese education and labor market systems have a tough time redesigning jobs or shifting human and machine capital investments in response to economic and technological change. In recent years, the equitable but inflexible European and Japanese models have driven up costs, suppressing job creation and driving up unemployment. In contrast, the agile American model has boosted job creation and income inequality.

America's characteristic flexibility also means that employers don't need to rely on the nation's home-grown talent. Immigration is a major source of talent among math and science professionals. The National Science Foundation noted in 2002 that a majority of America's civil engineers, for example, are foreign born and more than one-third of all engineers are foreign born. In addition, American companies are free to produce offshore if they cannot find the talent at home at the right prices.

The problem

America's advantages won't last. The United States cannot remain a first-rate economic power with mediocre human capital. All forms of advantages are temporary in global economies. The European and Japanese versions of highly planned economies surged in the 1970s but lost out to American flexibility in the 1980s. Eventually, America's competitors will narrow the U.S. economic lead as they learn how to create their own versions of agility and scale. At that point, the competition will really come down to who can educate, train, and retain the best human capital—especially in a world where people are no longer nation bound, and technology and financial capital ignore national boundaries as they hop across borders from one entrepreneurial opportunity to the next. **TD**

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