CHAPTER 1

A Projected Shortage of Skilled Workers for the Future

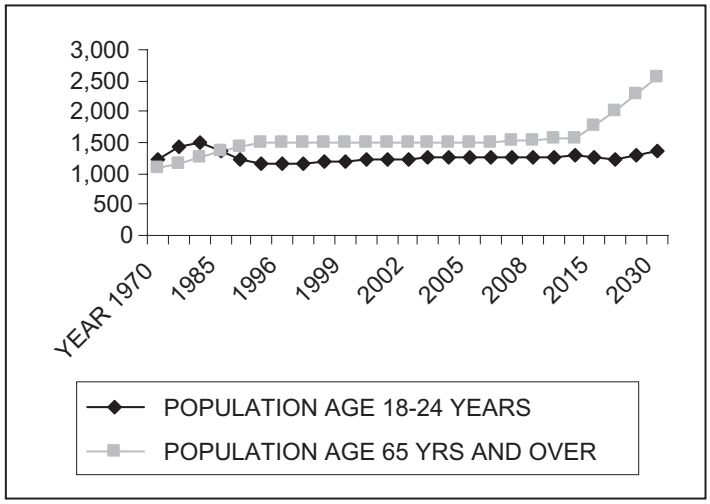
Although increasing the number of high paying jobs and increasing the skills of the work pool will help bolster the middle class, the U.S. and Illinois will face yet another obstacle in the future. Researchers predict that there will be a shortage of skilled workers due to Baby Boomer retirements, shifting demographics, and rapidly increasing, technological changes. In 2003, the Department of Commerce and Economic Opportunity (DCEO) initiated the *Critical Skill Shortage Initiative* to align regional workforce programs to a supply of workers and to build a skilled and globally competitive workforce throughout the state. Manufacturing and health care were two areas of critical shortages; both require sound STEM skills.[22] Keeping Illinois competitive will require increasing educational attainment, particularly of the black and Hispanic population; ensuring all workers engage in lifelong learning to keep their skills current; and investing in innovative ways to increase the productivity of occupations with potential critical shortages.

The Baby Boomers Retirees

According to the *Jobs Revolution,* by 2010 when the first wave of Baby Boomers reach retirement, there will be too few workers, especially workers with the necessary skills, to fill the new positions that are anticipated for the future. The projections indicate a U.S. shortfall of 1.8 million workers with two-year degrees, 3.3 million workers with four-year degrees, and 1.9 million workers with advanced degrees. There will be 30 million skilled-worker slots and 23 million Americans to fill them. By 2030, 41 million new workers will enter the workforce as 76 million will retire.[23]

In Illinois, the relationship between the number of "entry-age" workers (18 to 24 years old) and the number of "exit-age" workers (65 years and older) is projected to remain rather constant from 1996 through 2015. However, once the Baby Boomers reach retirement, nearly twice as many citizens will be "exit-age" as will be "entry-age."

Figure 3 Illinois Population at Work-Entry and Work-Exit Ages (In Thousands)[24]



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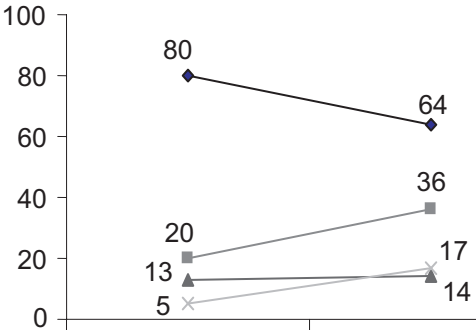
In addition, there are indications that Illinois is similar to the nation: skilled Baby Boomers are retiring in record numbers, but the new workers taking their place are largely under-prepared, particularly in mathematics and science.[25] Nationally, approximately half of the science and engineering bachelor's degree holders in the labor force leave full-time employment by the age of 62, and half of the doctorate degree holders leave by age 66.[26] If the Baby Boomers continue to retire at these same ages, there is a potential for shortages of skilled workers and a "brain drain."

Educational Attainment Gaps

Keeping Illinois competitive will require a continuous increase in the educational attainment of the workforce. However, the population of Illinois is becoming increasingly diverse with the largest growth in the Hispanic population, which traditionally has lower levels of educational attainment.[27] In 2000, there was a significant disparity in the educational attainment of the working-age population (25 to 64 years old) in Illinois. About 22% of the black population had less than a high school credential, and a comparable (23%) proportion had some college. Over half of the Hispanic working population had less than a high school credential, and only 13% held a college degree. Among the white working age population, only 8% had less than a high school degree, and over 40% had a college degree.

By 2020, one-third of the workforce in Illinois will come from non-white groups, with the majority of growth within the Hispanic group. As workers from minority groups become an increasingly dominant part of the Illinois workforce, their education will be increasingly critical to the success or failure of the economy.

Figure 4 Percentages of Illinois Worker-Age (25 to 64 Year Old) by Ethnicity[28]



	1980	2020
White	80	64
All Minority	20	36
Black	13	14
Hispanic	5	17

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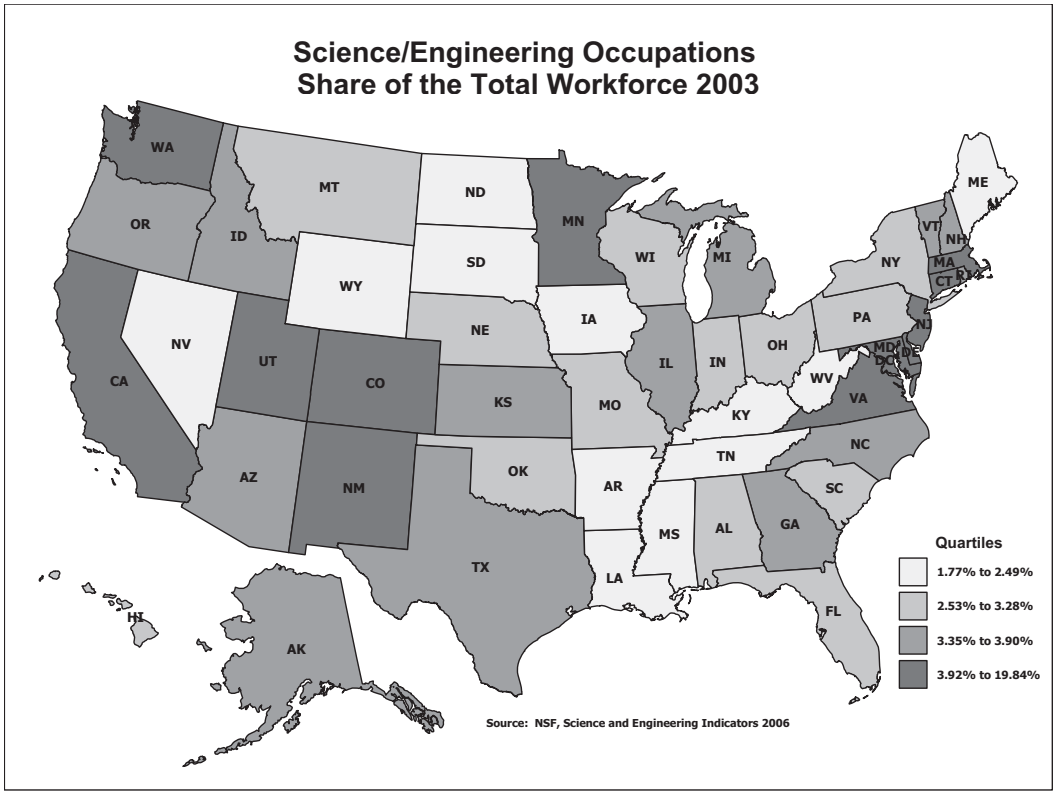
With the possibility of a shortage of skilled workers, it will be important for Illinois to have *No Worker Left Behind*. Some states, such as Connecticut, are trying to tap the unemployed populations in inner cities, another population which historically has been under-represented in postsecondary education.[29] If the disparity in degree attainment does not change, the educational level of the Illinois worker will decrease as the population shifts to fewer workers from populations with higher levels of educational attainment and more workers from populations with lower levels of educational attainment.[30]

At the same time, the economic vitality of the U.S. depends upon innovation, which is advanced by science, technology, engineering, and mathematics. These types of advances require a cadre of the workforce with advanced degrees and skilled in research and development. During 2003 in Illinois, 3.56% of the workforce was employed in science and engineering occupations, compared to 3.61% nationwide. States in the Northeast, Southwest, and on the West Coast had the highest percentages of science and engineering occupations in their workforces.[31]

Figure 5 Percentages of Workforce in Science and Engineering Occupations in 2003



Compared to other large, industrial states, Illinois has similar total proportions of the workforce in engineering, life/physical sciences, and computer specialties. However, Illinois has a higher percentage of workers in computer specialties, except for California and fewer engineers, except for Florida and New York.[32]

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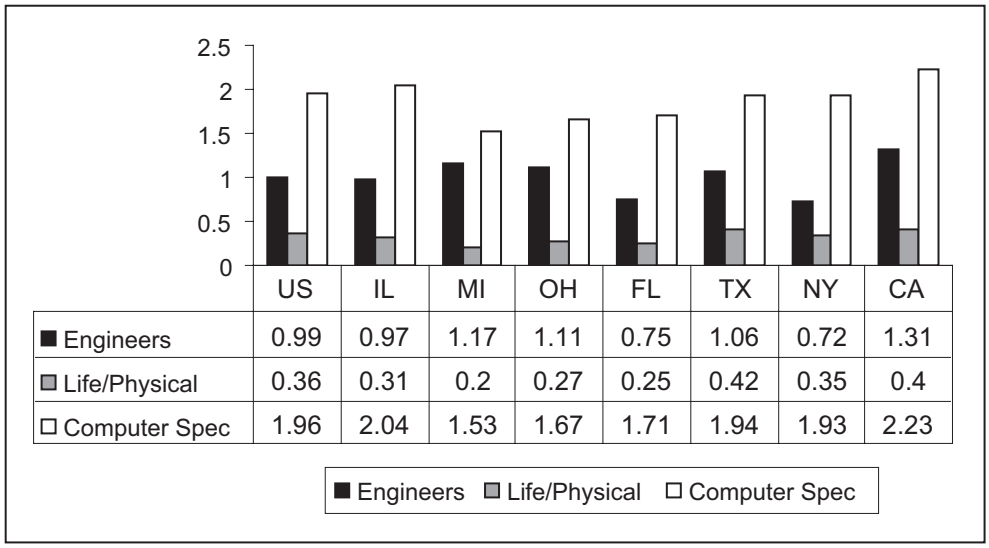
Figure 6 Percentages of Workforce in Engineering, Life/Physical Sciences, and Computer Specialties in 2003



	US	IL	MI	OH	FL	TX	NY	CA
Engineers	0.99	0.97	1.17	1.11	0.75	1.06	0.72	1.31
Life/Physical	0.36	0.31	0.2	0.27	0.25	0.42	0.35	0.4
Computer Spec	1.96	2.04	1.53	1.67	1.71	1.94	1.93	2.23

The number of doctorate holders is commonly used as an indicator for a region's research and development capacity. From 1997 to 2003, the number of U.S. science and engineering doctorate holders increased 13% to 568,000, representing 0.41% of the workforce. During the same period, the percent of the Illinois workforce holding science and engineering doctorates remained stable (0.35% to 0.36%), placing Illinois in the second highest quartile of states. The first quartile had rates ranging from 2.35% to 0.50% and included states such as California, Massachusetts, and New Jersey.[33]

In summary, the current workforce in Illinois is comparable to national and Midwest workforces in terms of the proportion of employees in science and engineering occupations. Illinois' proportion of employment in computer specialties occupations is comparatively strong in the Midwest. However, Illinois lags behind states that are experiencing strong economic growth, such as California and Massachusetts, in the proportion of STEM employees.

Predictions indicate that Illinois, as well as the U.S., will face critical shortages of workers in the next few decades. The shortages will be in headcounts as well as in employees with the requisite knowledge and skills. Given this projected shortage of skilled talent, it becomes ever more important for public and private entities to find ways to

- Increase the educational attainment level, especially of those in under-represented groups
- Continually retain and retrain their current workers with the skills needed to keep Illinois competitive
- Increase productivity especially for jobs in which there will be a critical shortage of workers