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# HELP WANTED

## PROJECTIONS of JOBS and EDUCATION REQUIREMENTS Through 2018



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# Executive Summary

## Help Wanted: Projections of Jobs and Education Requirements Through 2018

America is slowly coming out of the Recession of 2007—only to find itself on a collision course with the future: not enough Americans are completing college.<sup>1</sup> The Georgetown University Center on Education and the Workforce shows that by 2018, we will need 22 million new college degrees—but will fall short of that number by at least 3 million postsecondary degrees, Associate’s or better. In addition, we will need at least 4.7 million new workers with postsecondary certificates. At a time when every job is precious, this shortfall will mean lost economic opportunity for millions of American workers.

This shortage is the latest indication of how crucial postsecondary education and training has become to the American economy. The shortfall—which amounts to a deficit of 300,000 college graduates every year between 2008 and 2018—results from burgeoning demand by employers for workers with high levels of education and training. Our calcu-

lations show that America’s colleges and universities would need to increase the number of degrees they confer by 10 percent annually, a tall order.

Meeting this demand is not a challenge we can afford to ignore. Our grandparents’ economy, which promised well-paying jobs for anyone who graduated from high school, is fading and will soon be altogether gone. Over the past three decades, higher education has become a virtual must for American workers. Between 1973 and 2008, the share of jobs in the U.S. economy which required postsecondary education increased from 28 percent to 59 percent. According to our projections, the future promises more of the same. The share of postsecondary jobs will increase from 59 to 63 percent over the next decade. High school graduates and dropouts will find themselves largely left behind in the coming decade as employer demand for workers with postsecondary degrees continues to surge.

FIGURE 1

Postsecondary education provides access to occupations across the economy, while workers with a high school diploma or less are largely limited to three occupational clusters that are either declining or pay low wages.

Source: Authors’ analysis of March CPS data, various years; Center on Education and the Workforce forecast of educational demand to 2018

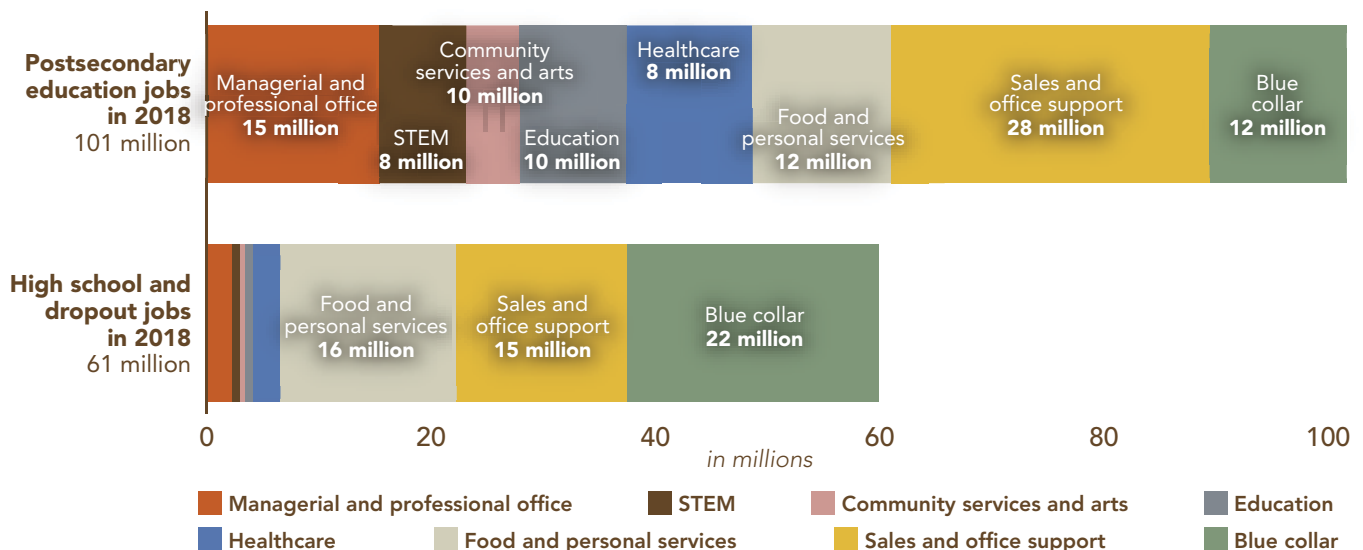
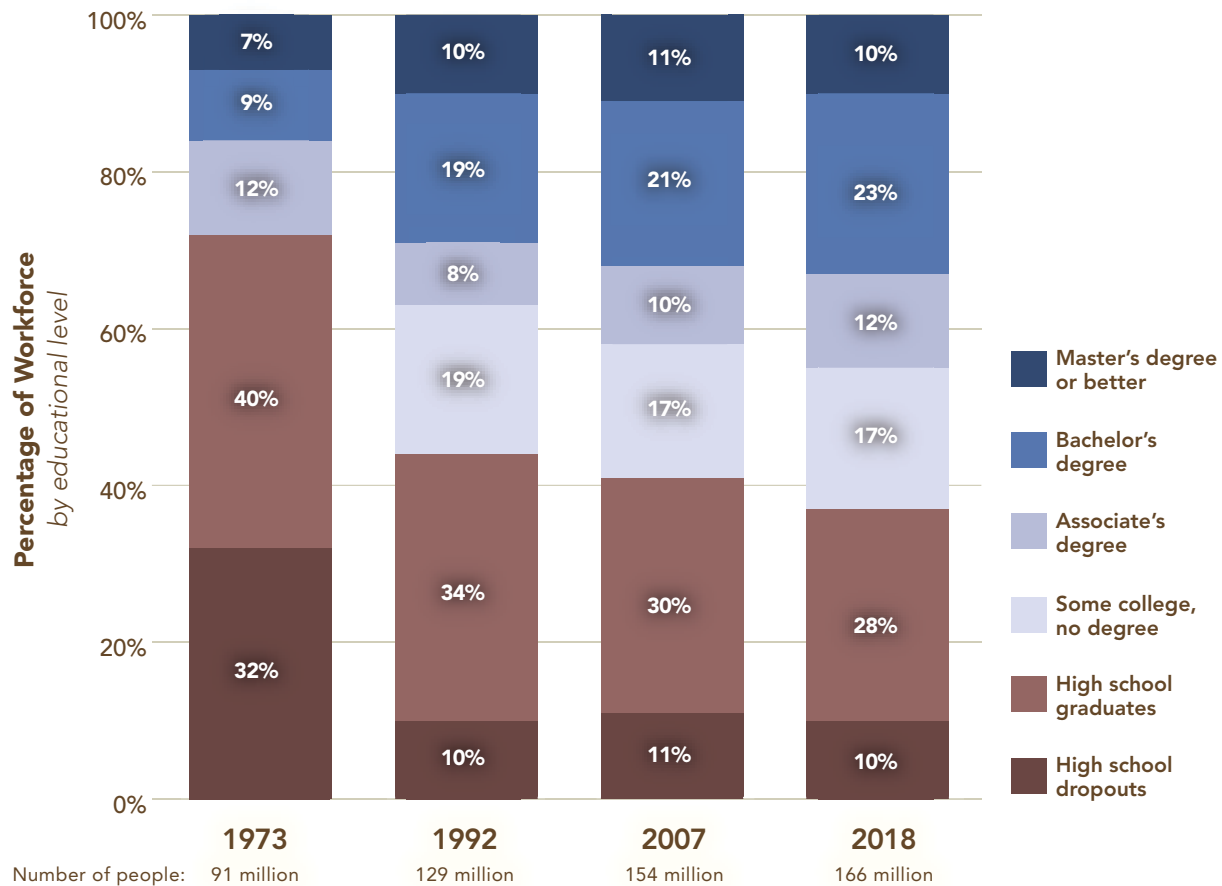


FIGURE 2

Between 1973 and 2018, our projections show that jobs available for workers with postsecondary education are projected to increase from 28 percent to 63 percent of all occupations.

Source: Authors' analysis of March CPS data, various years; Center on Education and the Workforce forecast of educational demand to 2018



In our analysis of occupations, we find that nine out ten workers with a high school education or less are limited to three occupational clusters that either pay low wages or are in decline (Figure 1). As the economy gets back on track over the next five years, 60 million Americans are at risk of being locked out of the middle class, toiling in predominantly low-wage jobs that require high school diplomas or less.

### THE SHIFT TO A COLLEGE ECONOMY WILL CONTINUE OVER THE NEXT DECADE.

The core mechanism at work in increasing demand for postsecondary education and training is the computer, which automates repetitive tasks and increases the value of non-repetitive functions in all jobs. Occupations with high levels of non-repetitive tasks, such as professional and managerial jobs, tend to require postsecondary education and training. These types of jobs are growing, while positions dominated

by repetitive tasks that tend to require high school or less, like production jobs, are declining.<sup>2</sup>

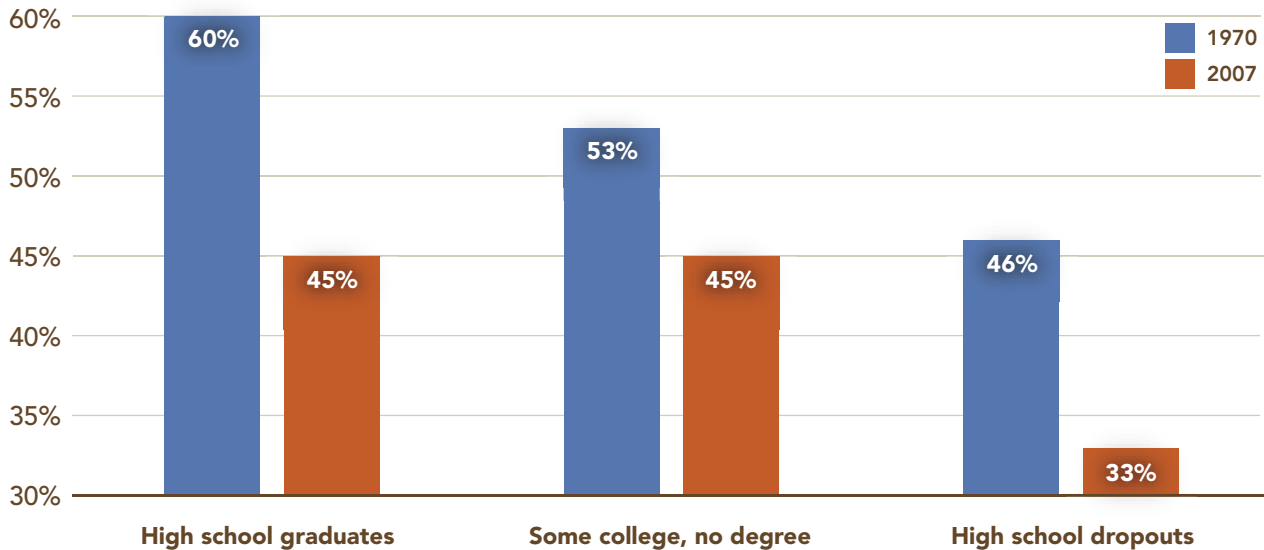
The iPod is an example of a typical post-industrial product. Less than 20 percent of the value added in the manufacture of video and audio equipment from the United States comes from the blue collar production workers who manufacture it. By contrast, about 80 percent of the value added comes from the white collar office workers who design, market, finance, and manage the global production and dissemination of these products.<sup>3,4</sup>

Consider that, in 1973, there were 25 million jobs available to people with at least some college or better (Figure 2). By 2007 that number ballooned to 91 million jobs. In 34 years, the American job machine nearly quadrupled the number of jobs available to people with at least some formal education beyond high school.

FIGURE 3

People who do not complete postsecondary education are falling out of the middle class.\*

Source: Authors' analysis of March CPS data, various years; Center on Education and the Workforce forecast of educational demand to 2018



\*Middle class is defined as the middle four family income deciles (\$30,000-79,000).

### POSTSECONDARY EDUCATION HAS BECOME THE GATEKEEPER TO THE MIDDLE CLASS AND THE UPPER CLASS.

As the economy evolved, postsecondary education gradually became the threshold requirement for access to middle class status and earnings. In the 37-year time frame shown in Figure 3, the share of people in the middle class with some college education and no degree or less, declined dramatically.<sup>5</sup>

Over that same period, the share of people with college degrees have either stayed in the middle class or boarded the up-escalator to upper class incomes—the three highest family income deciles. After the dust has settled, the educational composition of the middle class favors workers with some college or better (Figure 4). In 1970, 26 percent of the middle class had postsecondary education and training. By 2007, 61 percent of middle class workers had postsecondary education and training.

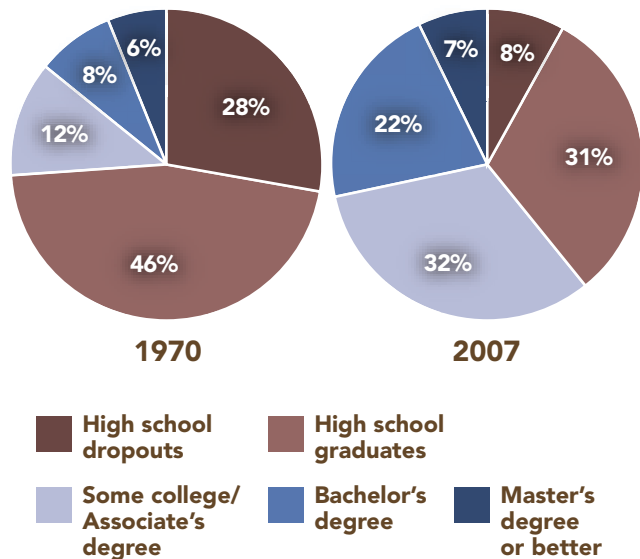
Workers with postsecondary education and training are moving into the upper class.<sup>7</sup> That is, the educational composition of the upper class also favors workers with some college or better (Figure 5). In 1970, 44 percent of the upper class had postsecondary education and training. By 2007, 81 percent of upper class workers had postsecondary education and training.

FIGURE 4

Increasingly, the middle class is composed of workers with postsecondary education and training.

In 1970 only 26% of the middle class had postsecondary education. Today, 61% need postsecondary education.

Source: Authors' analysis of March CPS data, various years; Center on Education and the Workforce forecast of educational demand to 2018

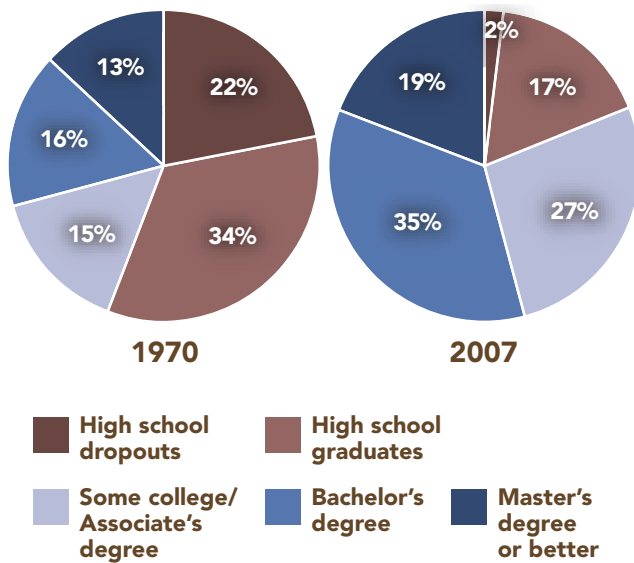


**FIGURE 5**

Increasingly, the upper class is composed of workers with postsecondary education and training.

In 1970, only 44% of the upper class had postsecondary education. Today, 81% have postsecondary education.

Source: Authors' analysis of March CPS data, various years; Center on Education and the Workforce forecast of educational demand to 2018



Given the transformation of workers by economic class, postsecondary education and training is no longer just the preferred pathway to middle and upper income classes—it is, increasingly, the only pathway.

### TODAY'S CAREER PATHWAYS ARE IN OCCUPATIONS NOT WITHIN INDUSTRIES.

Federal, state, and local governments face a dilemma as they formulate economic development strategy because the traditional approach to understanding career pathways starts with an industry based perspective while careers, and career mobility, are based on occupation. The emphasis on postsecondary preparation for new hires means that workers will tend to be attached more to the occupations they will be filling than to the specialized industries in which they work. The day when people left high school to go to work in the local industry and then worked their way up is disappearing. Starting out, straight from high school, on the loading dock or in the mail room and climbing to the CEO's corner office is no longer an option. People do not go to work in industries any more. They get educated or trained, go to work in occupations, and progress in an occupational hierarchy. Some occupations are

tied tightly to particular industries, healthcare occupations for example, but more and more occupations are dispersed broadly across industries. And industries vary widely in how many jobs they create: old-line manufacturing, clearly, is in decline. But even some new industries, such as information services, have only limited hiring potential because they are tech-heavy and can achieve high levels of productivity with relatively few workers. This means governments will need to be selective about how they approach industries and where they deploy scarce development resources.

### CONCLUSION: HIGHER EDUCATION IS CRITICAL TO SUCCESS IN THE COMING ECONOMY.

As a result of a broad concern about the United States underperforming in postsecondary education, President Barack Obama in February, 2009 told a joint session of Congress: "By 2020, America will once again have the highest proportion of college graduates in the world."<sup>7</sup> Subsequent analysis at the National Center on Higher Education Management Systems (NCHEMS) estimated that achieving the President's goal would require an additional 8.2 million postsecondary graduates by 2020.<sup>8</sup>

At current cost the goal of producing 8.2 million new college graduates would require an increase of \$158 billion by 2020 in nominal spending at the state and federal level. The costs are daunting, nearly \$16 billion per year.

The Obama Administration has come up with an additional \$36 billion for spending on Pell grants in its reform of the postsecondary financing system (SAFRA). This leaves \$122 billion outstanding which would have to come from state and local budgets.

We recognize, in the current budget climate, that it will be difficult for states to come up with their share. Ultimately, federal and state governments will need to engage postsecondary institutions as partners in finding ways to pay for achieving this goal. Together they must develop reforms that result in both cost-efficient and quality postsecondary education and training programs.

The impending shortage of at least three million Associate's degrees or better lends urgency to the questions about the financing of America's college and university system.

Failure to achieve the mix of funding and reform required for the President's goal will not only leave more and more Americans behind—it will damage the nation's economic future.

And that, quite simply, is something we cannot afford.

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<sup>1</sup> We conducted this research as an alternative to official government data, which consistently underestimate the demand for postsecondary education. Actual counts of postsecondary workers in 2008 showed that the official government estimate of postsecondary degrees was off by 47 percent. Our methodology, for that same period, over-predicted postsecondary education demand by just 4 percent.

<sup>2</sup> Many low-wage, low-skill jobs—such as fast food positions—are also difficult to automate. This produces an occupational and wage structure in which low-wage/low-skill jobs continue to grow along with high-skill/high-wage jobs – although much more slowly. Our projections show that technology change preserves many low-wage/low-skill jobs that require high school or less; has mixed effects on mid-skill jobs that require certificates and AAs; and grows high-skill/high-wage jobs that require BA's or better (Autor, Katz and Kearney, 2008).

<sup>3</sup> Anthony Carnevale and Steven Rose. Input Output Analysis of the U.S. Economy. Center on Education and the Workforce. Work in Progress. 2010.

<sup>4</sup> On average, 18 percent of the product components are imported.

<sup>5</sup> Dropouts, high school graduates and people with some college but no degree increasingly are on the economic down-escalator, falling out of the middle class and into the lower three deciles of family income. In 1970, almost half (46 percent) of high school dropouts were in the middle class. By 2007, the share of dropouts in the middle class had fallen to 33 percent. In 1970, almost 60 percent of high school graduates were in the middle class. By 2007, the share had fallen to 45 percent. In 1970 almost 53 percent of workers with some college, no degree were in the middle class. By 2007, the share had fallen to 45 percent.

<sup>6</sup> The share of people with Bachelor's degrees in the middle class declined from 47 percent to 38 percent. But the share of people with a Bachelor's in the top three income deciles jumped from 37 percent to 48 percent. Meanwhile, the share of people with Graduate Degrees in the middle class declined from 46 to 30 percent. Clearly, though, they were leaving for higher standards of living, as the share of people with Graduate Degrees in the top three income deciles increased from 41 to 61 percent.

<sup>7</sup> In July 2009, the President committed to a down payment on reasserting America's global leadership in postsecondary education with a commitment to an increase of five million community college graduates.

<sup>8</sup> We produced this in collaboration with Dennis Jones and Patrick Kelly.





# Appendix

## Educational distribution of total jobs (by occupation) in 2018

Source: Center on Education and the Workforce forecast of educational demand through 2018

OCCUPATIONS:	High school dropouts	High school graduates	Some college, no degree	Associate's degree	Bachelor's degree	Master's degree or better	TOTAL
Healthcare Support	316,220	1,650,170	1,316,377	1,015,012	433,370	95,088	4,826,237
Community Services and Arts	41,044	411,231	583,516	526,375	2,520,524	1,126,326	5,209,016
STEM	27,717	729,443	865,555	1,054,172	3,614,642	2,261,768	8,553,297
Healthcare Professional and Technical	-	450,038	610,671	2,161,139	2,924,180	2,667,125	8,813,153
Education	60,302	654,477	825,721	674,515	3,906,200	4,112,993	10,234,208
Managerial and Professional Office	253,580	2,033,003	2,340,385	1,766,664	7,518,784	3,771,595	17,684,011
Food and Personal Services	5,311,606	10,375,799	5,176,370	2,953,944	3,705,516	472,328	27,995,563
Blue Collar	7,122,598	15,322,808	5,805,475	3,664,944	2,387,683	337,899	34,641,407
Sales and Office Support	2,326,477	12,838,226	10,908,550	5,901,593	10,069,661	1,498,611	43,543,118
TOTAL*	15,459,544	44,465,195	28,432,620	19,718,358	37,080,560	16,343,733	161,500,010

## Educational distribution of total jobs (by industry) in 2018

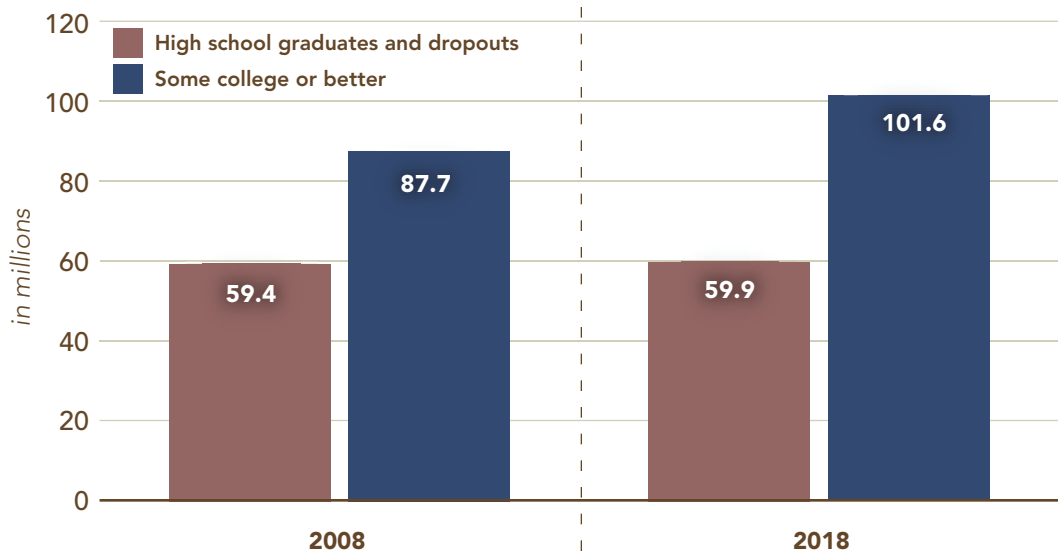
Source: Center on Education and the Workforce forecast of educational demand through 2018

INDUSTRIES:	High school dropouts	High school graduates	Some college, no degree	Associate's degree	Bachelor's degree	Master's degree or better	TOTAL
Wholesale and Retail Trade Services	2,054,180	7,747,315	5,240,566	2,628,735	5,384,497	1,089,876	24,145,169
Professional and Business Services	1,172,360	3,181,083	2,995,082	2,264,671	8,649,452	4,795,087	23,057,735
Government and Public Education Services	347,226	3,465,799	4,127,209	3,909,128	7,246,199	2,764,115	21,859,676
Healthcare Services	991,378	4,124,082	3,519,395	3,936,313	5,116,397	2,866,496	20,554,061
Leisure and Hospitality Services	4,029,596	4,635,877	2,937,440	1,351,427	2,690,571	509,823	16,154,733
Manufacturing	1,262,440	4,646,339	1,984,204	1,458,667	2,612,356	1,116,125	13,080,131
Financial Services	217,869	1,780,750	2,220,391	1,177,103	4,506,022	1,441,828	11,343,964
Construction	1,809,463	3,554,175	1,387,382	878,205	837,183	162,861	8,629,269
Transportation and Utilities Services	553,317	2,871,578	1,262,668	768,033	1,049,958	181,151	6,686,704
Personal Services	970,426	2,065,142	1,064,372	914,406	750,046	447,987	6,212,379
Private Education Services	40,041	432,463	366,395	263,122	1,141,766	1,237,942	3,481,728
Information Services	-	291,555	736,215	381,689	1,547,880	503,713	3,461,051
Natural Resources	817,562	1,158,793	281,276	257,506	275,567	92,117	2,882,822
TOTAL*	14,265,858	39,954,951	28,122,595	20,189,005	41,807,893	17,209,121	161,549,423

\*The education totals for education categories do not match totally between occupation and industry due to methodological differences. A discussion of the methodology used to generate all forecasts in this document is available at the Center's website at [cew.georgetown.edu](http://cew.georgetown.edu).

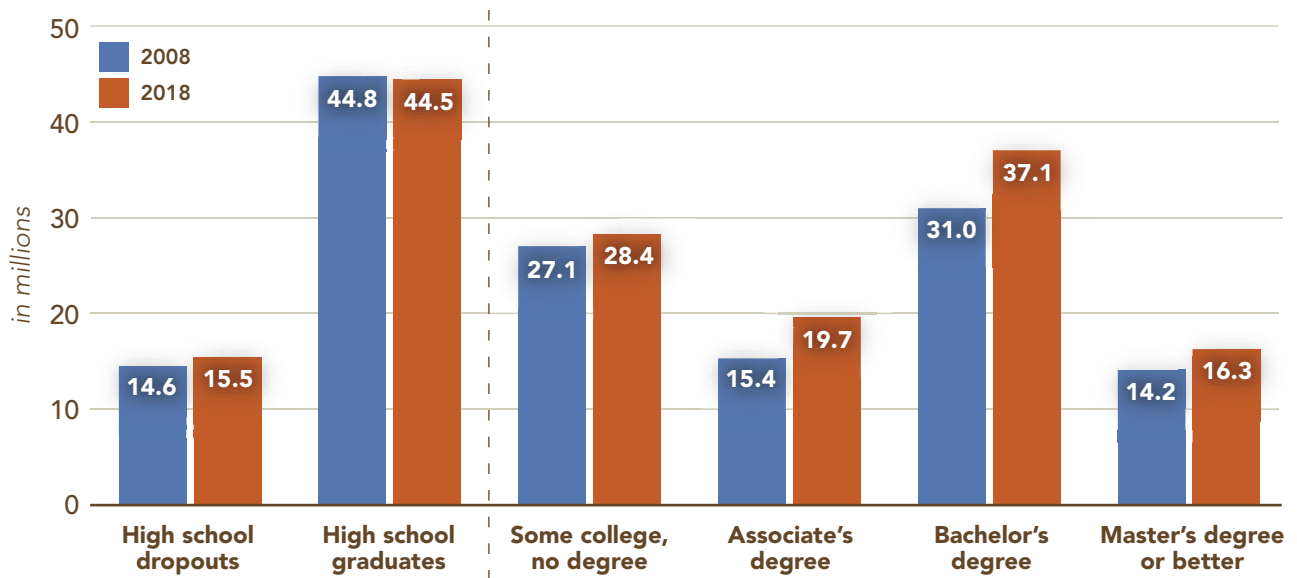
### Educational distribution of total jobs in 2008 and 2018

Source: Center on Education and the Workforce forecast of educational demand through 2018



### Detailed educational distribution of total jobs in 2008 and 2018

Source: Center on Education and the Workforce forecast of educational demand through 2018





Help Wanted: Projections of Jobs and Education Requirements Through 2018

*is comprised of an executive summary, a national report and a state-level analysis.*

*It provides comprehensive industrial and occupational forecasts of where jobs will be  
and what kinds of preparation they will demand of their workers.*

*The report is available online at <http://cew.georgetown.edu/>, or hard copies can be obtained  
by contacting the Center at [cewgeorgetown@georgetown.edu](mailto:cewgeorgetown@georgetown.edu).*

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