



Wilcap L.L.C.

Preparing Our Students for Career Success: What Parents Should Know

by G. Douglas Young
Managing Director, Wilcap L.L.C.

Preparing Our Students for Career Success: What Parents Should Know¹

1 INTRODUCTION AND SUMMARY

The conventional wisdom is that we live in a knowledge economy with an ever-growing need for skilled workers. The assumed passport into the knowledge economy has been a college degree; with that piece of paper you would get a good job and live a middle class lifestyle or better. While vocational careers are available to those without a college degree, those careers have been perceived as “inferior.” Unfortunately, in today’s economy, these beliefs do not conform to reality and can contribute to unnecessary hardship.

This paper will argue that the real problem begins with parents, counselors and others—all of us—who embrace old assumptions about college, careers and the path to success. Those assumptions are outmoded because of the dramatic changes that have occurred in the labor market.

It will provide insights into the U.S. Department of Education College Scorecard (<https://collegescorecard.ed.gov/data>) that will enable parents and students to make better decisions about postsecondary education by understanding the risks and the likely returns in the form of graduation, earnings and career success from postsecondary education pathways.

Finally, it will demonstrate the important opportunity parents have to change the dynamic for their children by presenting the benefits and advantages of helping students to pursue an occupation-driven education path beginning as early as middle school.

We look at the research from the point of view of parents, who are the key influencers of students’ educational choices and career pathways². The conclusions are guided by the following observations:

- The labor market has changed dramatically, and these changes will continue as automation intensifies. The jobs that survive—and pay well—will include management and professional occupations as well as middle wage occupations that combine routine tasks with other cognitive and social skills, e.g. medical paraprofessionals and those in skilled trades and repair.
- As college costs have risen and the aversion to student debt has increased, graduation and employment outcomes have become even more important. As we will see in this document, a surprising percentage of former students think that college was not worth the cost because of poor outcomes.
- Parents and students can benefit from looking at careers and postsecondary education differently and choosing carefully to find training/education with strong ROI and career viability.

Maximizing students’ opportunities and helping them make good postsecondary educational choices has to begin with an understanding of the dramatic changes in the labor market since 2000.

¹ This paper was written by G. Douglas Young. Mr. Young’s background is described in Appendix A. The research was underwritten by Universal Technical Institute, Inc. (“UTI”) but the opinions expressed are those of the author and not necessarily those of UTI. The white paper was revised in September 2016 to include updated information from the College Scorecard.

² See Appendix B for additional information on why the focus on parents is important.

2 WHAT HAPPENED IN THE LABOR MARKET AFTER 2000?

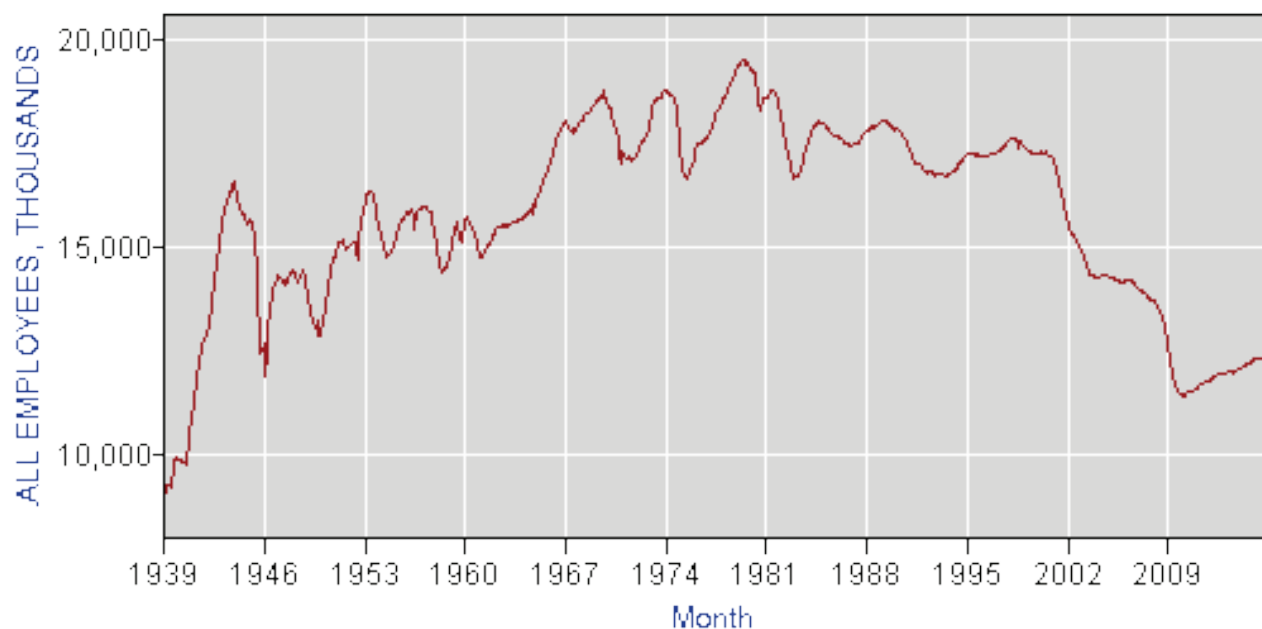
Globalization, technology and the internet have intensified competition since 1980. In order to meet consumer demand for lower prices, companies had to find ways to lower costs across their supply chains. Businesses looked to restructuring, automation, trade and offshoring to gain a cost advantage or simply remain competitive. Higher wage, routine jobs were a logical target for cost cutting which is why we start with data on manufacturing employment in the U.S.

According to the Bureau of Labor Statistics (“BLS”), manufacturing employment rose from approximately 10 million in 1939 to nearly 20 million workers in the 1970s. As automation increased through the 1980s and 1990s, employment stabilized or declined slightly. From 2000 employment in manufacturing fell to levels last seen in the 1940s and all the job gains from 1940 to 1980 were eliminated. This occurred in the space of only one decade! Global trade, primarily with China, was the principal reason for that decline³.

Employment that was displaced in blue collar jobs often shifted to food and personal service jobs, usually at much lower wages, a trend that particularly impacted men. Research showed that the net impact of automation and trade was the growth of polarization—more jobs and higher wages at the top and more jobs and lower wages at the bottom—and the ‘hollowing out’ of the middle class.

As a result of these trends, service jobs increased to approximately 80% of total employment. These jobs were relatively safe from automation but had lower wages.

Employment in Manufacturing in the U.S. from 1939 to 2015

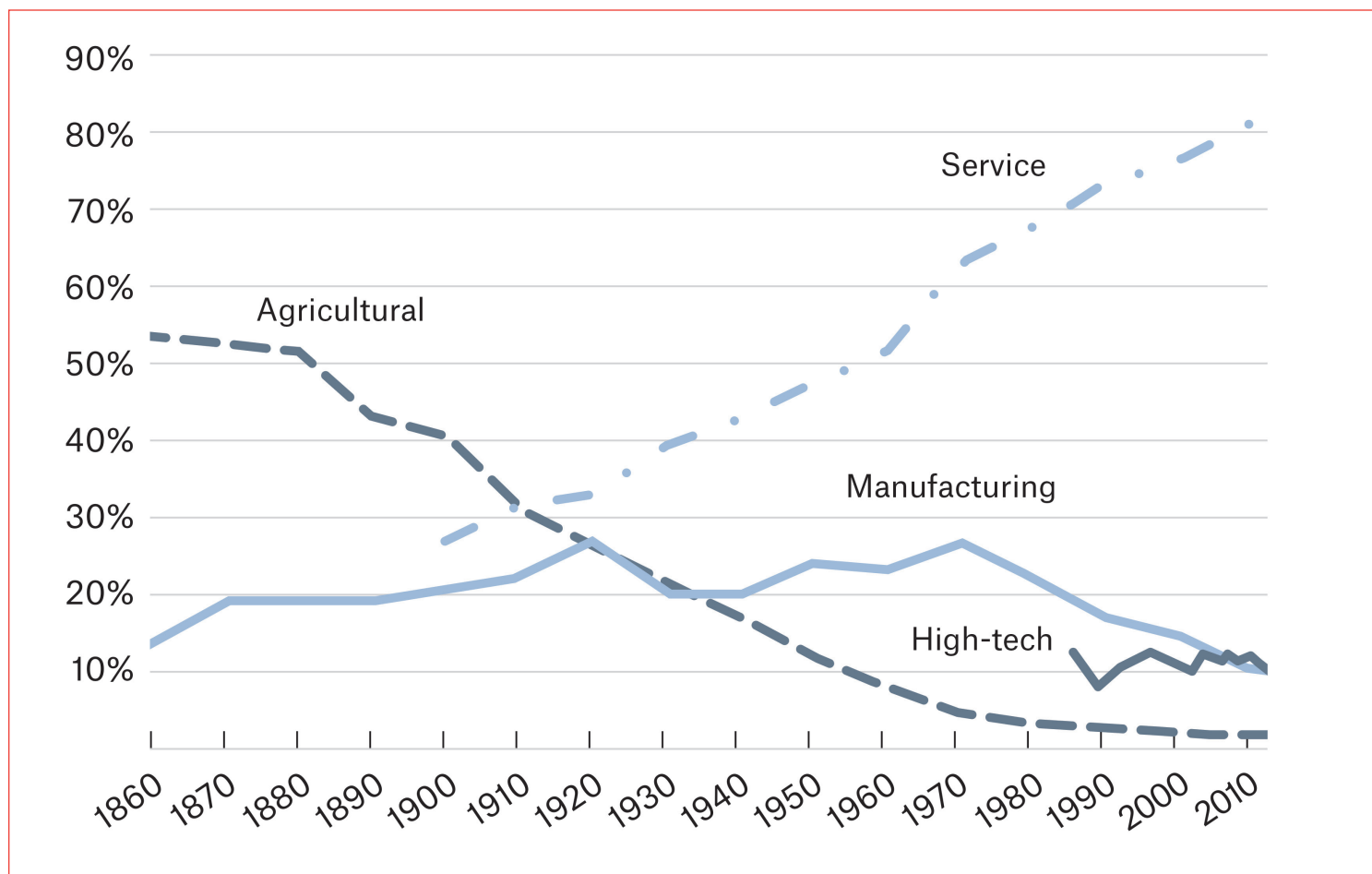


Source: BLS. <http://data.bls.gov/timeseries/CES3000000001>

³ The work of David Autor and David Dorn and others was very helpful for this discussion. In particular, see David Autor, David Dorn, Gordon H. Hanson, *Untangling Trade and Technology: Evidence from Local Labor Markets*, September 2014. (<http://economics.mit.edu/files/10201>)

2 WHAT HAPPENED IN THE LABOR MARKET AFTER 2000?

Composition of the U.S. Work Force 1860-2012



Source: Ronald Inglehart, *Inequality and Modernization*, Foreign Affairs, Jan/Feb 2016. <https://www.foreignaffairs.com/articles/2015-12-14/inequality-and-modernization>

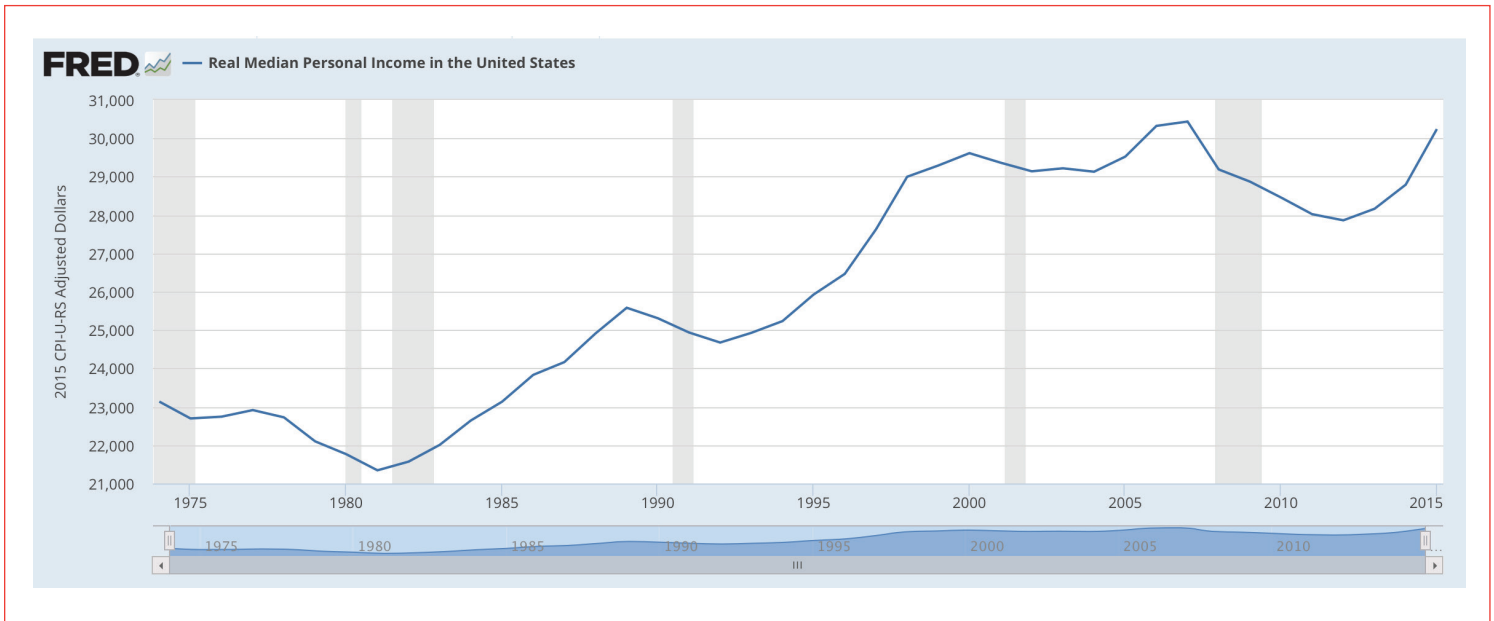
The labor market also got worse for college-educated workers after 2000:

“After 2000, however, occupational employment patterns of college-educated workers turned sharply downward...these patterns suggest that the set of abstract task-intensive jobs is not growing as rapidly as the potential supply of highly educated workers...the coalescence of these forces has likely led highly educated workers to seek less educated jobs, which in turn creates still greater challenges for the lower educated workers competing for routine and manual task-intensive work.”⁴

With the large growth of low-wage service jobs and the slowing need for college-educated workers, it is not surprising that personal income stagnated in 2000 after growing steadily in prior decades. The real median personal income in the U.S. in 2015 was \$30,240 (see chart).

⁴ David H. Autor, *Polanyi's Paradox and the Shape of Employment Growth*, MIT, Sept. 3, 2014. (<http://economics.mit.edu/files/9835>)

Personal Income in the United States



Source: <https://fred.stlouisfed.org/series/MEPAINUSA672N>

These labor market trends started before the 2009 Great Recession and are continuing during the recovery. Obviously the economy impacts the labor market but the focus of this paper is on long-term trends, not economic cycles.

Upskilling of Certain Vocational Occupations

Even though many middle-skill technical jobs were lost, some remain. The remaining jobs survived because they require special expertise or because the product or service became more complex, more customized or required greater precision. Some examples:

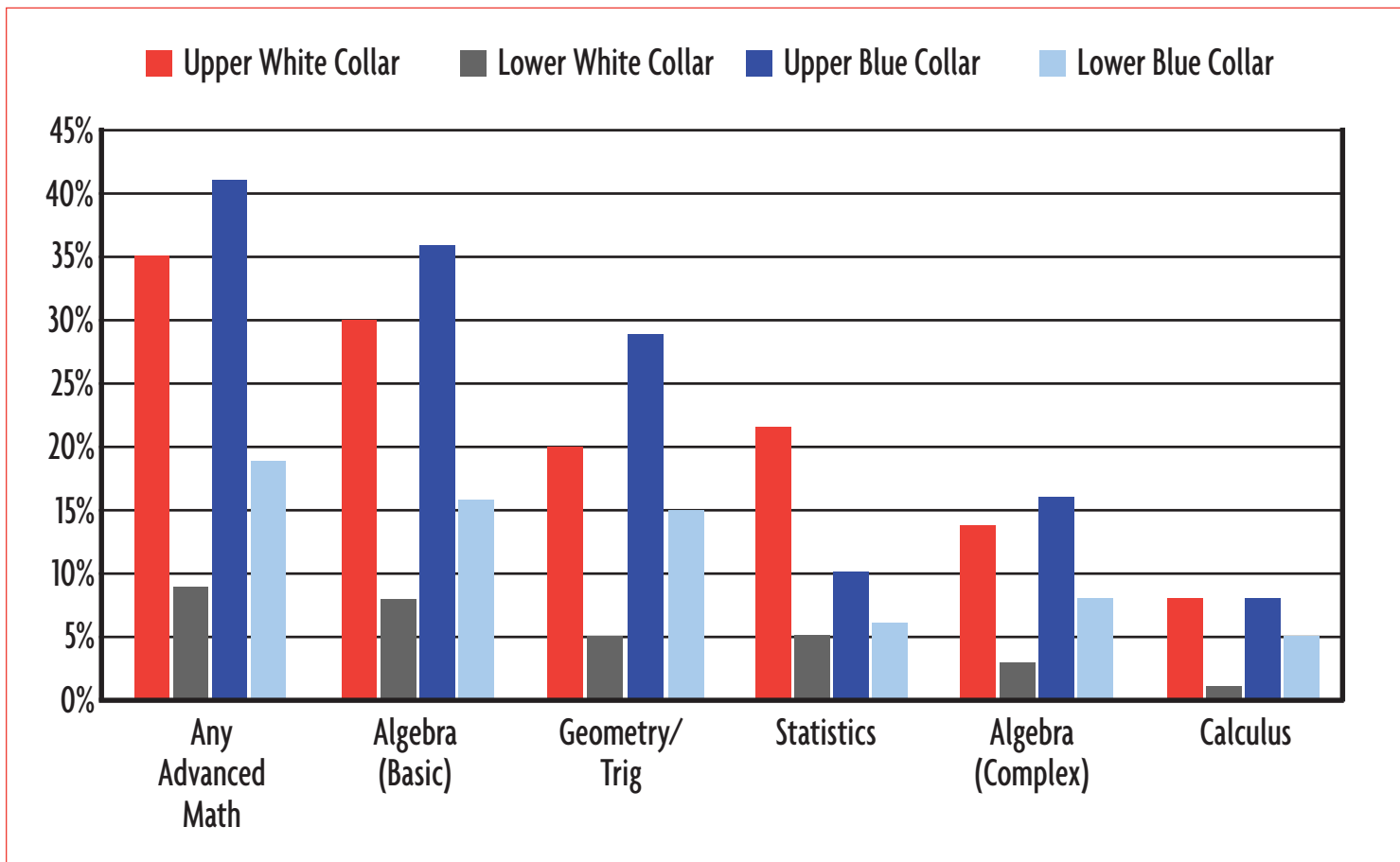
- Automotive technician.** Consumers want some products to be better, not just cheaper. The evolution of the automobile is one example. Consider how different vehicles were in the 1980s and 1990s compared to today's sophisticated models which may include entertainment systems, safety features (collision avoidance, blind spot monitor, lane assist, backup camera, etc.), connectivity (navigation, apps, remote assistance, etc.) and hybrid technology in addition to the basic components required for driving. In order to achieve those functions, advanced cars are full of computers, sensors and software. Not surprisingly, repairing and maintaining these vehicles requires a more skilled technician than in the past.
- CNC machine operator.** Many machinists lost their jobs to cheaper firms overseas. But some highly-skilled machinist jobs remained in the U.S. because of the complexity and precision of the production task. An article in *The Atlantic* profiled a CNC machine operator making fuel injectors which require precision and working with small batches⁵. The skills required for the profiled CNC operators include advanced math (calculus), programming, 3-D visualization, metallurgy, and the ability to operate several machines at a time.
- Assembly line worker.** Many assembly lines have been automated by using robots, particularly automobile assembly. That automation was made possible because every vehicle going down the line was reasonably similar. But what happens when customers want greater customization and the vehicles are dissimilar? Mercedes-Benz discovered that robots did not have the flexibility and adaptability to handle the degree of customization it needed and actually replaced robots with humans!⁶

⁵ Adam Davidson, *Making it in America*, *The Atlantic*, Jan./Feb. 2012. (<http://www.theatlantic.com/magazine/archive/2012/01/making-it-in-america/308844>)

⁶ Elisabeth Behrmann, Christoph Rauwald, *Mercedes Boots Robots From the Production Line*, *bloomberg.com*, Feb. 25, 2016. (<http://www.bloomberg.com/news/articles/2016-02-25/why-mercedes-is-halting-robots-reign-on-the-productionline>)

2 WHAT HAPPENED IN THE LABOR MARKET AFTER 2000?

With that background, it is not surprising to learn that skilled blue collar workers use more advanced math than skilled white collar workers:



Source: Jordan Weissmann, *Here's How Little Math Americans Actually Use at Work*, theatlantic.com, April 24, 2013. <http://www.theatlantic.com/business/archive/2013/04/heres-how-little-math-americans-actually-use-at-work/275260/>

Surprisingly, many of the skilled trade jobs with decent earnings are also those experiencing the greatest shortage of talent. As shown in the chart to the right, Manpower Group found that skilled trades were the jobs that employers were having the greatest difficulty filling.

The shortage is likely a consequence of old perceptions about vocational occupations being inferior to college occupations, even though they can be more challenging than many white collar occupations and can earn higher pay.

The Future Will Likely be Worse

In the past 15 years, service jobs and non-routine work were relatively immune to trade or automation. The future will be very different because automation is targeting service and non-routine jobs. Automation in the form of different combinations of artificial intelligence, robots, software, and big data will make jobs more insecure and/or will require more upskilling. This will be true at all wage levels:

Top 10 Jobs Employers Are Having Difficulty Filling—2015

Rank	Job
1	Skilled Trades
2	Drivers
3	Teachers
4	Sales Representatives
5	Secretaries, Office Support Staff etc.
6	Management/Executives
7	Nurses
8	Technicians
9	Accounting & Finance Staff
10	Engineers

Source: 2015 Talent Shortage Survey, Manpower Group. http://www.manpowergroup.com/wps/wcm/connect/408f7067-ba9c-4c98-b0ec-dca74403a802/2015_Talent_Shortage_Survey-lo_res.pdf?MOD=AJPERES&ContentCache=NONE

- **Low wage.** Some service jobs will be targeted by cheaper robots. Already, robots act as health care aides in Japan and small “robots” clean household floors. Some construction jobs may be replaced by 3-D printers, and driverless vehicles will likely replace many taxi and truck drivers.
- **Middle wage.** Software is already replacing some financial analysts on Wall Street. Many tasks performed by paralegals and patent lawyers—e.g. scanning briefs and precedents for pre-trial research—can now be done by sophisticated algorithms.
- **Higher wage.** Higher wage jobs will benefit from automation but may also be threatened by some combination of software, artificial intelligence and big data. Watson, the IBM computer, can already diagnose certain types of cancer.

Two Oxford researchers, Carl Frey and Michael Osborne, calculated the expected impact of technology in a 2013 research study⁷. They concluded that 47% of jobs in the U.S. were at high risk of automation over the next decade or two, based on current technology. Yet another study from the OECD⁸ focuses on tasks rather than occupations and concludes that 9% of jobs in the U.S. are at high risk of automation (70% ‘automatability’ or more). The reality likely lies between those two estimates since very few occupations are eliminated completely, but many routine jobs can be eliminated within an occupation while upskilling the remaining positions (e.g. bank tellers after the introduction of ATMs). Furthermore, these studies are based on existing technology but technology continues to evolve, adding another layer of insecurity about the future.

A recent report from McKinsey⁹ helps explain what is likely to occur. The study estimated that 45% of work activities could be automated based on existing technology but an additional 13% of activities could be automated if language recognition technology improved. Work activities are not the same as occupations so they add:

“According to our analysis, fewer than 5 percent of occupations can be entirely automated using current technology. However, about 60 percent of occupations could have 30 percent or more of their constituent activities automated. In other words, automation is likely to change the vast majority of occupations—at least to some degree—which will necessitate significant job redefinition and a transformation of business processes....Particularly in the highest-paid occupations, machines can augment human capabilities to a high degree, and amplify the value of expertise by increasing an individual’s work capacity and freeing the employee to focus on work of higher value.”

⁷ Carl B. Frey and Michael A. Osborne, *The Future of Employment: How Susceptible are Jobs to Computerisation?*, September 17, 2013. (http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf)

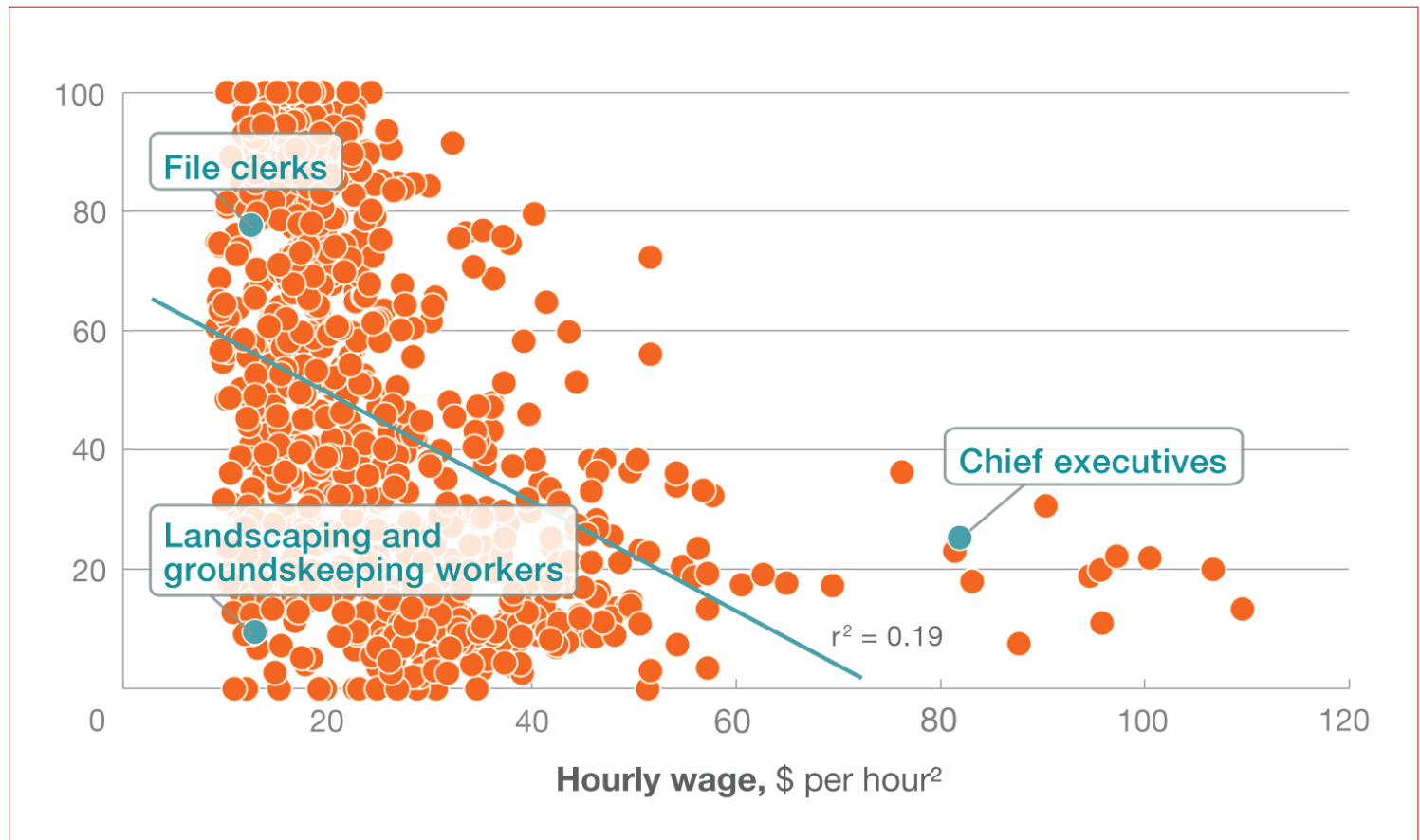
⁸ Arntz, M., T. Gregory and U. Zierahn (2016), “*The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis*”, OECD Social, Employment and Migration Working Papers, No. 189, OECD Publishing, Paris. (<http://dx.doi.org/10.1787/5jlz9h56dvq7-en>)

⁹ Michael Chui, James Manyika, Mehdi Miremadi, *Four Fundamentals of Workplace Automation*, McKinsey Quarterly, November 2015. (<http://www.mckinsey.com/business-functions/business-technology/our-insights/four-fundamentals-of-workplace-automation>)

2 WHAT HAPPENED IN THE LABOR MARKET AFTER 2000?

The McKinsey chart below shows different occupations (the orange dots) in a chart where wages are along the horizontal axis and the automation risk is shown in the vertical axis. The chart is useful to illustrate several points:

Ability to Automate



Source: Michael Chui, James Manyika, Mehdi Miremadi, Four Fundamentals of Workplace Automation, McKinsey Quarterly, November 2015. <http://www.mckinsey.com/business-functions/business-technology/our-insights/four-fundamentals-of-workplace-automation>

- **There are a lot of lower wage occupations.** Most of the occupations are clustered between \$10- \$25 per hour. There aren't nearly as many high wage occupations.
- **The automation risk is mainly for low wage occupations.** The likely job loss will mostly occur for lower wage jobs. The middle wage jobs with high automation risk are mostly gone already. The frightening prospect is that those lower wage workers who lose their jobs to automation will seek lower wage jobs that have not been automated, putting even more downward pressure on those lower wages. That would make inequality even worse.

What Jobs Are Safer for the Future? The “New Artisans”

A parent or advisor looking to help a student get a good job in the future would want to avoid the low income occupations which are likely to become even more competitive. The high wage occupations are attractive, but not every student is able to fill those positions or would want the stress that accompanies those positions. For those students, that leaves the middle wage positions as a possible alternative. What are these positions? According to David Autor and David Dorn¹⁰:

¹⁰ David Autor and David Dorn, [How technology Wrecks the Middle Class](http://opinionator.blogs.nytimes.com/2013/08/24/how-technology-wrecks-the-middle-class/?_r=0), The New York Times, August 25, 2013. (http://opinionator.blogs.nytimes.com/2013/08/24/how-technology-wrecks-the-middle-class/?_r=0)

“We predict that the middle-skill jobs that survive will combine routine technical tasks with abstract and manual tasks in which workers have a comparative advantage — interpersonal interaction, adaptability and problem-solving. Along with medical paraprofessionals, this category includes numerous jobs for people in the skilled trades and repair: plumbers; builders; electricians; heating, ventilation and air-conditioning installers; automotive technicians; customer-service representatives; and even clerical workers who are required to do more than type and file. Indeed, even as formerly middle-skill occupations are being “deskilled,” or stripped of their routine technical tasks (brokering stocks, for example), other formerly high-end occupations are becoming accessible to workers with less esoteric technical mastery (for example, the work of the nurse practitioner, who increasingly diagnoses illness and prescribes drugs in lieu of a physician). Lawrence F. Katz, a labor economist at Harvard, memorably called those who fruitfully combine the foundational skills of a high school education with specific vocational skills the ‘new artisans.’”

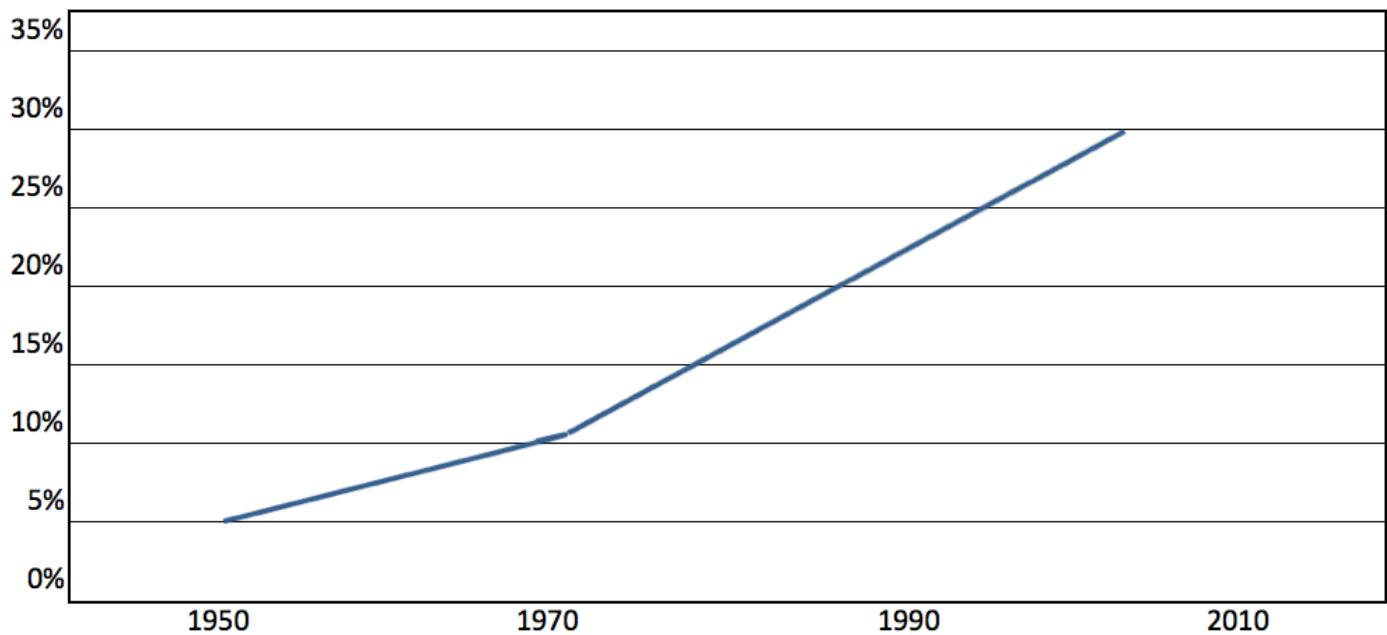
3 INCREASING COMPETITION FOR GOOD JOBS AND THE IMPACT ON EARNINGS

Along with shifting labor market demands, an oversupply of college graduates is intensifying the competition for good jobs and changing average earnings for various kinds of post secondary educational programs.

Oversupply of College Graduates

The percent of the U.S. population with a college degree has grown steadily since 1950 from just over 5% to 30% in 2010 (see chart below):

Persons 25 Years or Older With College Degrees, 1950-2010



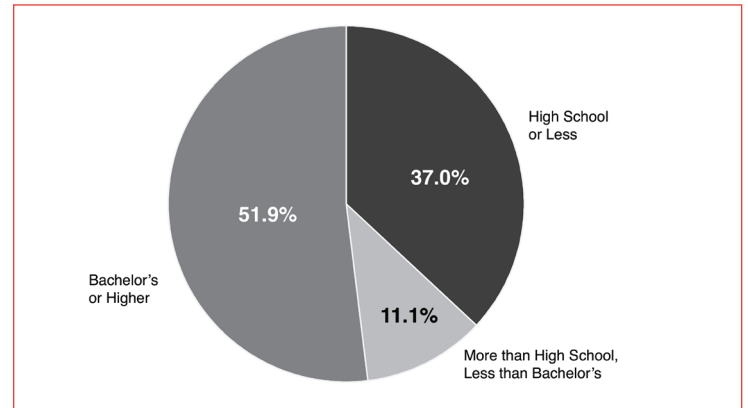
Source: U.S. Bureau of the Census

Source: Richard Vedder, Christopher Denhart, and Jonathan Robe, *Why are Recent College Graduates Underemployed*, January 2013. <http://centerforcollegeaffordability.org/uploads/Underemployed%20Report%202.pdf>

There are not enough college level jobs for all the college graduates (see Appendix C for greater detail). That oversupply has adverse consequences. According to Richard Vedder, 48% of college graduates are in occupations that don't require a college degree—37% of those require only a high school degree or less (see chart at right). They are underemployed.

When supply exceeds demand, it isn't surprising that competition for good jobs has intensified and the income trend for bachelor degree holders has been stagnant or falling since 2000. Meanwhile, the income trend of high school graduates and high school dropouts has been falling even more. Only those with master's degrees have seen more stable incomes (see chart below).

Education Requirements of Occupations Held by College Graduates



Source: Richard Vedder, Christopher Denhart, and Jonathan Robe, *Why are Recent College Graduates Underemployed*, January 2013. <http://centerforcollegeaffordability.org/uploads/Underemployed%20Report%202.pdf>

Rising and Falling Incomes

Change in median income by educational attainment of head of household, since 1991, adjusted for inflation



Source: Josh Zumbrun, *Is Life Better Than It Was Decades Ago? For Trump Voters, Maybe Not*, wsj.com, April 11, 2016. <http://blogs.wsj.com/washwire/2016/04/11/is-life-better-than-it-was-decades-ago-for-some-voters-probably-not/>

Educational ROI: The Importance of Job Skills for Earnings

In September 2015, the U.S. Department of Education released the College Scorecard (<https://collegescorecard.ed.gov/>) to enable parents and students to make better decisions about postsecondary education. The critical information for each institution includes cost, 10-year median earnings and graduation rate, although employment rates are not included. While the data is not ideal—mostly aggregate averages, blended across all programs—it is a good start towards transparency. It still yields some important surprises. The data was updated in September 2016.

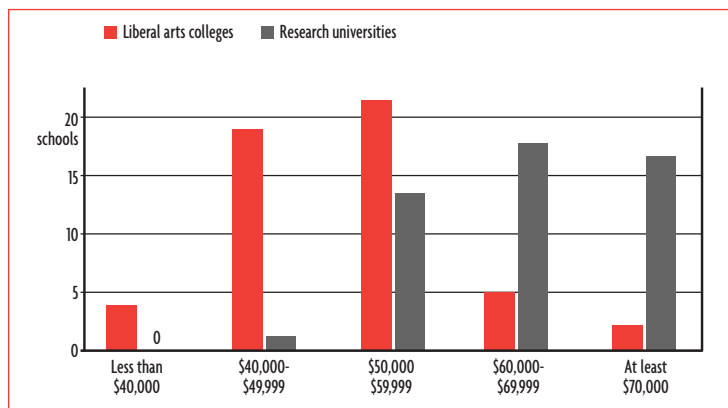
The catalyst for this paper was an article in The Wall Street Journal with the title “Parents’ Fears Confirmed: Liberal Arts Students Earn Less”¹¹. The study showed that students who started at the 50 most selective liberal arts colleges in the U.S. had median earnings 10 years later below \$50,000. While the numbers are only for Title IV¹² students and include dropouts, it was still surprising that earnings weren’t higher given these were the 50 liberal arts colleges with the highest SAT scores. The findings were particularly surprising because the earnings of students who went on to law school, business school or any other graduate institution are included with their initial college in these numbers. By comparison, the real median 2015 household income in the U.S. was \$56,516¹³.

The surprise was even greater because the 10-year selective liberal arts college earnings outcomes in the College Scorecard database were not much greater than the earnings outcomes shown for the Arizona campus¹⁴ of Universal Technical Institute, Inc. (“UTI”). UTI is a technical school with programs averaging just over one year. The earnings are primarily for students focused on the auto-diesel service technician occupation.

Further analysis showed that UTI students (including dropouts) had higher 10-year median earnings than the average for all 4-year liberal arts colleges (not just the most selective).

Skewed Salaries

At nearly half of the most selective U.S. liberal arts colleges students who enrolled had a median salary below \$50,000 10 years later.



Note: Earnings are based on students who entered college in the 2001 or 2002 school years. Top 50 schools are based on SAT scores from 2002 where 2001 scores weren't available
Source: U.S. Department of Education, The Wall Street Journal

¹¹ Andrea Fuller, *Parents’ Fears Confirmed: Liberal Arts Students Earn Less*, wsj.com, November 3, 2015. (<http://www.wsj.com/articles/parents-fears-confirmed-liberal-arts-students-make-less-1446582592>)

¹² Title IV refers to federal student aid funds in the form of grants or loans. The loans may go to students or, in certain cases, to parents.

¹³ Source: Federal Reserve Bank of St. Louis. (<https://fred.stlouisfed.org/series/MEHOINUSA672N>).

¹⁴ The earnings data for the Arizona campus are actually for a group of campuses (the OPEID) which today includes five other UTI campuses. The earnings data shown in the College Scorecard for UTI of Arizona represent earnings for the four campuses that were operating in 2001-2003 (Arizona, Rancho Cucamonga, NASCAR Technical Institute and Glendale Heights) that are included in the Office of Postsecondary Education Identifier (OPEID) assigned to UTI of Arizona. The OPEID number is assigned by the U.S. Department of Education to identify schools that have program participation agreements (PPAs) so its students are eligible to participate in federal student financial assistance programs under Title IV regulations.

Institution Type (a)	10-Year Median Earnings (b)	Graduation Rate (c)
Doctoral Universities	\$48,490	62.0%
UTI-Arizona	\$43,500 (d)	63.1% (e)
Liberal Arts Colleges	\$42,642	65.6%
Community Colleges	\$29,412	22.2%

(a) Based on revised Carnegie classifications (15-17 for doctoral universities; 21 for liberal arts colleges; 1-9 for associates colleges). A "public" control filter was used on associate's colleges to obtain a proxy for community colleges. (b) Based on Title IV recipients, 10 years after starting. Includes dropouts. (c) For first-time, full-time students. (d) The earnings data shown in the College Scorecard for UTI of Arizona represent earnings for the four campuses that were operating in 2001-2003 (Arizona, Rancho Cucamonga, NASCAR Technical Institute and Glendale Heights) that are included in the Office of Postsecondary Education Identifier (OPEID) assigned to UTI of Arizona. The OPEID number is assigned by the U.S. Department of Education to identify schools that have program participation agreements (PPAs) so its students are eligible to participate in federal student financial assistance programs under Title IV regulations. (e) (<https://collegescorecard.ed.gov/>) CollegeScorecard.ed.gov. 63.1% graduation rate represents College Scorecard's methodology (first-time, full-time graduation rate within 150% of program length) for the UTI Avondale campus. The most recent graduation rate for UTI Avondale reported on the Integrated Postsecondary Education Data System (IPEDS) for students who began in 2012-13 is 59% (first-time, full-time graduation rate within 150% of program length). The most recent national consolidated graduation rate reported in 2015 using our accreditor's (ACCSC) standards across all 12 UTI campuses was approximately 63% (all graduates within 150% of program length). The graduation rate for two-year public colleges excludes students who transfer and graduate from a four-year college.

Furthermore, the distribution of those earnings shows that UTI students were similar to liberal arts students at all levels except at the 90th percentile, where liberal arts students were higher. That fact is not surprising when you consider that the College Scorecard earnings include students who gained additional education, including law degrees, MBAs etc., after their initial undergraduate education.

10 Year Earnings (a)

Type of Institution (b)	Count	10th Percentile	25th Percentile	Median 10 Year Earnings	75th Percentile	90th Percentile
Doctoral Universities	331	\$14,034	\$30,610	\$48,490	\$71,213	\$100,443
UTI-Arizona (c)	1	\$12,500	\$27,500	\$43,500	\$59,900	\$78,900
Liberal Arts Colleges	243	\$13,062	\$27,307	\$42,642	\$61,168	\$86,894
Community Colleges	898	\$6,076	\$15,853	\$29,412	\$45,063	\$63,639

(a) Based on Title IV recipients, 10 years after starting. Includes dropouts. (b) Based on revised Carnegie classifications (15-17 for doctoral universities; 21 for liberal arts colleges; 1-9 for public associates colleges). A "public" control filter was used on associates colleges to obtain a proxy for community colleges. (c) The earnings data shown in the College Scorecard for UTI of Arizona represent earnings for the four campuses that were operating in 2001-2003 (Arizona, Rancho Cucamonga, NASCAR Technical Institute and Glendale Heights) that are included in the Office of Postsecondary Education Identifier (OPEID) assigned to UTI of Arizona. The OPEID number is assigned by the U.S. Department of Education to identify schools that have program participation agreements (PPAs) so its students are eligible to participate in federal student financial assistance programs under Title IV regulations.

How could a one-year technical school have higher median earnings than the liberal arts colleges? That was the question that prompted this research study and its focus on labor market trends. The reality is that these earnings reflect the labor market trends described in this white paper. The auto-diesel technician is a good example of an occupation that has been upskilled. And many liberal arts students are struggling in the job market because they may lack marketable job skills or some of the soft skills desired by employers¹⁵. In a world where there are too many candidates seeking too few good jobs, having job skills matters. Graduating with job skills is the key to obtaining a good return on an education investment.

¹⁵ Some people have trouble accepting that the liberal arts earnings numbers can be so low. Part of the reason is that the numbers include dropouts and are only for Title IV students, which is also true for the other institutions. The results are still below expectations for students who were admitted to a four-year college. The full explanation is demonstrated when we combine the graduation rate for four-year colleges (approximately 60%) with the underemployment rate (approximately 50%) for graduates. If success is defined as graduating from college with a college-level occupation, then approximately only one-third of students starting at a four-year college are successful (60% graduation times 50% college-level employment). Or stated differently, the 10-year earnings numbers for liberal arts colleges are lower than expected because two-thirds of starting college students are not successful.

3 INCREASING COMPETITION FOR GOOD JOBS AND THE IMPACT ON EARNINGS

The auto-diesel technician occupation is a useful case study¹⁶. Are there other technical occupations that have similar results? The College Scorecard is not a good source to answer that question because it does not yet break out earnings information by major. Unlike UTI, the earnings of most schools are blended across multiple programs. The BLS is a better source because it shows average earnings by occupation and by the typical education required for entry. Appendix D shows the earnings for occupations requiring an associate's degree or certificate. Because many of the highest earnings occupations are relatively small, the appendix also shows earnings for occupations of a minimum size. While there are many such occupations with above-average earnings, the pay within any given occupation will have higher paying jobs and lower-paying jobs. Parents would want to find a school that has relationships with good employers and delivers higher paying jobs.

¹⁶ The auto-diesel technician occupation is a relatively large occupation with employment across the country. While the earnings are only for one school (UTI), the earnings are for several UTI campuses across the nation, not just one region. Furthermore, there are certain jobs within the occupation that have not been upskilled (e.g. changing tires, changing oil etc.). UTI students are more likely to be employed in the upskilled jobs within the occupation e.g. at dealerships. Therefore, the UTI earnings for auto-diesel technicians are likely to be a good proxy for an upskilled vocation.

4 PARENTS AND STUDENTS HAVE TO CONSIDER THE DOWNSIDE RISKS

The New York Times wrote a recent editorial entitled “The Broken Bargain With College Graduates”:

“...the familiar assumption—graduate from college and prosperity will follow—has been disproved in this century. College-educated workers have not seen meaningful pay raises, and public policy has failed to address the stagnation...It is true that as a group college graduates make more than high school graduates...But standing still while others regress is no cause for celebration. The problem is that the economy does not produce enough jobs that require college degrees...The result is lower-quality jobs and lower pay for college graduates.”¹⁷

Students seem to be facing a ‘catch-22’ dilemma: If you don’t get a postsecondary education, you will get left behind in the competition for good jobs. But if you do pay for a postsecondary education, there is risk you won’t graduate and there is no guarantee you will get a good job even if you do graduate. While many students starting college are meeting their goals, the outcomes for many others are not as positive, and parents and students must make education investment decisions before starting college without any certainty about the outcomes.

Overcoming that dilemma begins with a full understanding of the downside risks. Consider:

- **High college dropout rates.** Approximately 40% of students starting four-year colleges and 60-70% of students starting two-year colleges do not graduate from those institutions¹⁸.
- **Dissatisfaction with high costs and student debt.** A recent poll for Consumer Reports found that 45% of people with student debt believed that college was not worth the cost¹⁹. 43% of student borrowers aren’t even making payments on their student loans²⁰. The biggest risk factors for dissatisfaction or defaults are non-graduation, unemployment and low incomes. Students with student debt are often living with their parents, unable to afford to purchase a house. Student debt is even affecting the marriage prospects of some students.
- **Many college graduates are struggling to find good jobs.** According to Jeffrey Selingo²¹, two-thirds of college graduates are struggling to launch their careers. As many as half of them may be underemployed after graduation and incomes for bachelor’s degrees have stagnated. Even some law school students and PhDs are struggling to find good jobs²². There are not enough good jobs for everyone who wants one and there is greater competition for those jobs. A low unemployment rate for college graduates does not mean they are all getting satisfactory jobs.

¹⁷ Source: Editorial, The Broken Bargain With College Graduates, The New York Times, May 22, 2016. (http://www.nytimes.com/2016/05/22/opinion/sunday/the-broken-bargain-with-college-graduates.html?_r=0)

¹⁸ The graduation rate over six years for first-time, full-time bachelor’s degree students is 59.4%. The source is the NCES (https://nces.ed.gov/programs/digest/d14/tables/dt14_326.10.asp). The two year graduation rate for postsecondary institutions within 150% of normal time is 29.4% for the 2010 starting cohort. The source is NCES: (http://nces.ed.gov/programs/digest/d14/tables/dt14_326.20.asp). If graduations of two-year students who transferred to four-year colleges are included in the two-year graduation rate, the combined graduation rate is 38.1% for the 2009 cohort. See NCES: (<https://nscresearchcenter.org/wp-content/uploads/SignatureReport10.pdf>).

¹⁹ Donna Rosato, Having the College Money Talk, Consumer Reports, August 2016. (<http://www.consumerreports.org/student-loan-debt-crisis/having-the-college-money-talk/>). Also (<http://www.consumerreports.org/student-loan-debt-crisis/>).

²⁰ Josh Mitchell, More Than 40% of Student Borrowers Aren’t Making Payments, The Wall Street Journal, April 7, 2016. (<http://www.wsj.com/articles/more-than-40-of-student-borrowers-arent-making-payments-1459971348>)

²¹ Jeffrey J. Selingo, Two-Thirds of College Grads Struggle to Launch Their Careers, Harvard Business Review, May 30, 2016. (<https://hbr.org/2016/05/two-thirds-of-college-grads-struggle-to-launch-their-careers>)

²² See Noam Scheiber, The Law School Bust, The New York Times, June 19, 2016; as well as Douglas Belkin, Ph.D. Prospects Peter Out, The Wall Street Journal, June 15, 2016.

4 PARENTS AND STUDENTS HAVE TO CONSIDER THE DOWNSIDE RISKS

- **High school graduates are struggling even more.** In the 2000-2009 decade, 5.8 million manufacturing jobs were eliminated in the U.S. People who lost those jobs often fell out of the middle class because of declining incomes. Many of the jobs they could get were temporary, part-time or insecure. In fact, jobs that were available to high school graduates in an earlier era are now being filled by college graduates unable to get college-level jobs. The middle class has been shrinking because of trade and automation.
- **Disconnected youth.** According to the Pew Research Center²³, there were 10.2 million youth ages 16-29 (16.9% of that age bracket's population) who were neither employed nor in education or training ("NEETs") in the U.S. in 2015.

The situation is even more surprising when you consider that there are good technical jobs—often paying college level incomes—that are going unfilled. What is going on?

The problem is not postsecondary education—it is still a necessary means to a good career. The ultimate problem isn't even better coordination between employers and educators. **The real problem is the conventional wisdom that employment is something you consider towards the end of an education path, that getting a college degree will automatically lead to a good career and that vocations are inferior. The new reality is very different.**

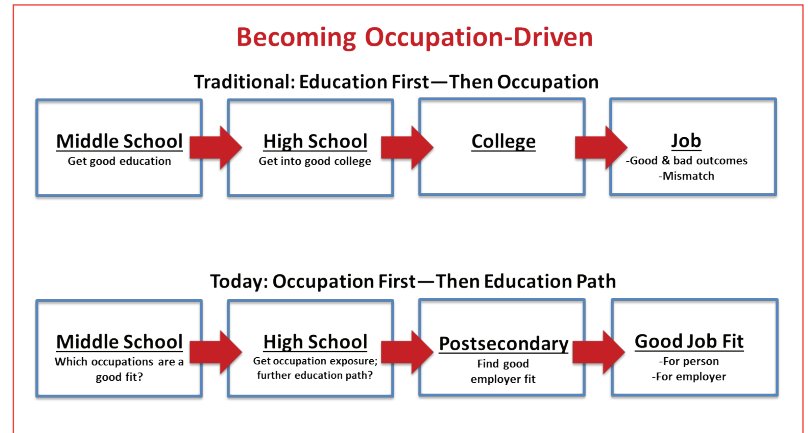
- **Job skills are critical.** There are not enough good jobs being created for the number of people who seek them. Having the right job skills is critical to compete effectively.
- **Parents need to develop an occupational strategy for their students.** Any time there is intense competition for a desired outcome, having a strategy is important for success. At a time when getting an education will not necessarily translate into good employment, parents need to start with an occupation goal for their students and design the educational and work experience path accordingly.
- **"Either-or" thinking is harmful.** Too often education and the work world have been kept separate. But the high cost of education today and the risks of underemployment mean that parents need to think "both-and". Students can take a career-oriented program at college (e.g. engineering) or some combination strategy that achieves both job skills and education by the time a student is ready to enter the work force. Parents and students can devise hybrid strategies which might include working first and then going to college, or college plus a boot camp, or taking a technical degree first, then later getting an online business degree.
- **"One-size doesn't fit all" for education.** Students have different abilities, financial resources and needs. Some students prefer to work with their hands; others may not yet have the maturity to graduate; still others have a passion for a particular kind of work. The education path needs to be tailored to the individual. General statements—e.g. "college for all"—are not a fit for today's workforce realities.
- **Postsecondary education must be treated as an investment, not a cost, and evaluated based on a return on investment ("ROI").** Parents are rightly concerned about the cost of postsecondary education. But picking a low cost alternative can be particularly costly in the long term, if the graduation and employment outcomes are poor. The reality is that postsecondary education is an investment that requires an understanding of the risks and rewards for a particular student, and the likely returns in the form of graduation, earnings and career success. This topic is covered in greater depth in Appendix E.

²³ Drew DeSilver, [Millions of young people in U.S. and EU are neither working nor learning](http://www.pewresearch.org/fact-tank/2016/01/28/us-eu-neet-population/), Pew Research Center, January 28, 2016. (<http://www.pewresearch.org/fact-tank/2016/01/28/us-eu-neet-population/>)

5 CONCLUSION: PARENTS NEED AN OCCUPATIONAL STRATEGY FOR THEIR STUDENTS

Parents and students are facing a new reality, impacted by changes in the labor market and the evolution of automation. There are not enough good jobs being created for the people who seek them. That means that having desirable job skills is critical and understanding the probability of graduation and occupational outcomes for a particular student is equally important. In the past, students could focus on getting a good education and worry about the occupation opportunities closer to graduation (see diagram). That is no longer true. Today, parents need to begin an occupation exploration for their students as early as middle school. An effective parental strategy would likely include:

Creating career-ready students: A new success model.



1. **Get a head start.** It will take time for a parent to determine which occupations might be a good fit for a student, based on talents, interests and passions. It will take more time to research the job skills, work experience, soft skills and education requirements for those occupations. And still more time for the student to get the appropriate work experience and skills. Starting as early as middle school could be advantageous. At the very least, parents and students can begin explorations and conversations, rather than simply focusing only on which college a student may eventually attend.
2. **Obtain good information and advice.** This is the most difficult step. Many government policies and institutions are still geared to serve the “college for all” assumption—without focusing on earnings and employment outcomes. High school counselors are often understaffed and many are focused on college counseling rather than career counseling. With information provided by colleges and academic research, a parent can discover graduation rates and occasionally earnings of graduates—but rarely can one find information on the earnings of dropouts. The College Scorecard earnings data is blended across graduates and dropouts and across all majors—not enough specific detail to be really helpful in choosing a specific career path. Wealthy parents can hire career counselors and they often have access to a network of friends and acquaintances that can provide contacts and advice. However, the average parent will have to rely on internet research and their own judgment until institutions provide information more relevant to new labor market realities. Additional information about implementation is available in Appendix F.
3. **Think creatively including “both-and”** Parents and students have much more flexibility today and will have even more in the future. The choice is no longer only between stopping at high school or paying for a college education that, for some, is only a credential but not a path to a better career. While a liberal arts degree may not provide job skills, a student can get a subsequent career degree (e.g. an M.B.A.) or develop job skills and employer relationships during summers, working part-time or even during a bridge year between high school and college. A technical degree doesn’t have to be an end point. A “hands-on” vocational degree could be later supplemented with an online business degree to facilitate a career path into management positions. College students with no job skills can also go to a short, intensive boot camp to learn practical skills. Employers are starting to value credentials and experience, not just degrees, giving students even more flexibility.

Parents and students are already aware of the cost of college and of the difficulties faced by many college students and graduates. This research can help explain why some problems are occurring and what can be done to give students a path to a good career. Ideally, the strategies recommended here will also minimize the mismatch that can occur between education and employment, which has caused an excess of students in some fields while good jobs go begging in other fields. Reducing that mismatch will require people to understand how certain vocations have been upskilled and can provide a route to the middle-class. Finally, the real benefit of these strategies could be a better alignment of educational debt with earnings outcomes, or—said differently—a stronger ROI for educational investments.

Background of G. Douglas Young

Doug Young is Managing Director of his own strategy consulting company, Wilcap L.L.C.

Mr. Young holds an honors B.A. in liberal arts from the University of Toronto, an M.A. from the University of Oxford in politics and economics and an MBA from Harvard University. He began his career as an investment banker with Lehman Brothers in New York when Lehman was still a private partnership and left Lehman in the early 1980s to come to Phoenix. He became the President and CEO of Sunbelt Holdings Inc., eventually leaving to form his own company in the late 1980s.

Mr. Young has had a relationship with Universal Technical Institute, Inc. ("UTI") since 1994 when he joined UTI's Advisory Board. He currently has a consulting relationship with the company.

To contact the author regarding this research, please email gdyoung@cox.net.

Why Focus on Parents?

There is a lot of research and information available on postsecondary education. Educational institutions promote the quality of their education and success of their graduates. Other institutions promote their low cost. Policymakers and pundits may promote a particular agenda such as ‘college for all’ or ‘education for its own sake’ or the virtues of technical training. Conventional wisdom about college investment may ignore the risks or even graduation and employment outcomes (see Appendix E). Furthermore, much of the advice about postsecondary education is disconnected from recent labor market trends. Therefore it is not surprising that parents and students make mistakes about their education-employment pathways and that there is rising anger and disillusionment among a broad cross-section of the electorate.

This white paper is written with the belief that change has to start with parents:

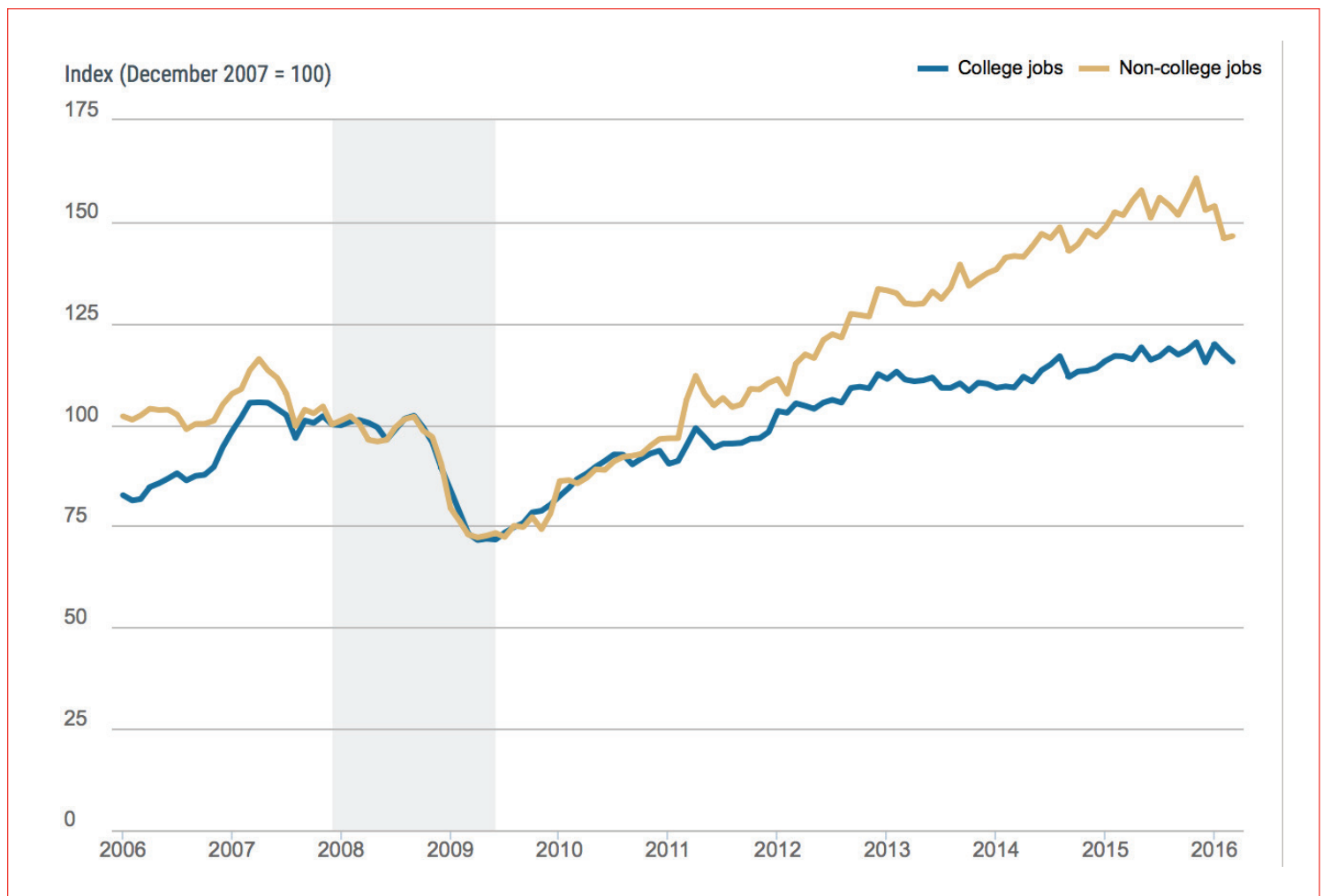
- **Parents are the key decision-makers.** Because key decisions may be made as early as middle school and high school, parents are important. Teachers and counselors will change over time, but parents are there through their children’s entire educational process.
- **Parents and students bear the risks.** The risks of poor outcomes are primarily borne by students and parents—not the pundits. Students are also the prime beneficiaries of good decisions about occupations and career paths.
- **Parents will be the agents of change.** Changing perceptions of lawmakers and institutions takes time. Informed parents have a vested interest in the success of their children and may be more receptive to research and information that can help them make wise choices and avoid disappointing outcomes. High tuition costs, aversion to debt and concern about outcomes are already affecting parent and student behavior.

The white paper also provides the kind of information that a parent would need to know in order to make good decisions, beginning with the labor market trends as well as an understanding of the downside risks (not just the upside opportunities) and some of the alternative pathways available.

Is the Economy Creating Good Jobs?

Many assume that the knowledge economy creates the need for more and more skilled jobs. So, from that perspective, “college for all” makes sense. But a deeper dive into the labor market shows a different pattern: Non-college jobs are growing faster than college jobs.

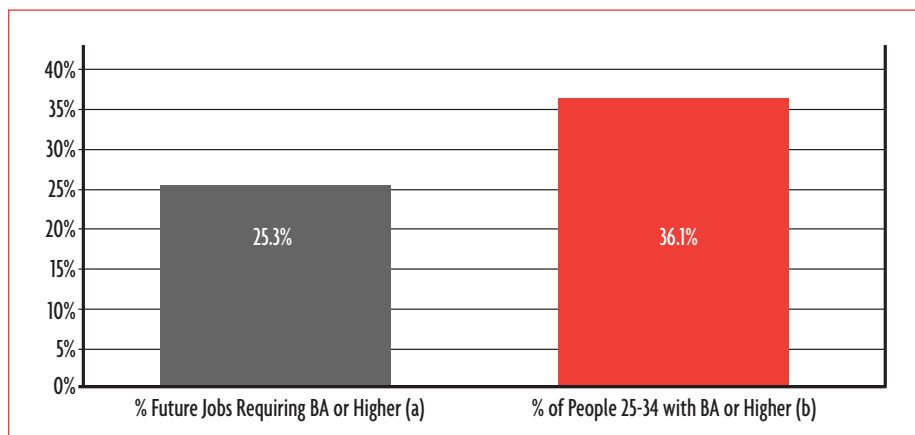
Postings for College and Non-College Jobs



Source: Federal Reserve Bank of New York. <https://www.newyorkfed.org/research/college-labor-market/index.html>. Defines a 'college job' as one in which more than 50% of the work force has at least a bachelor's degree.

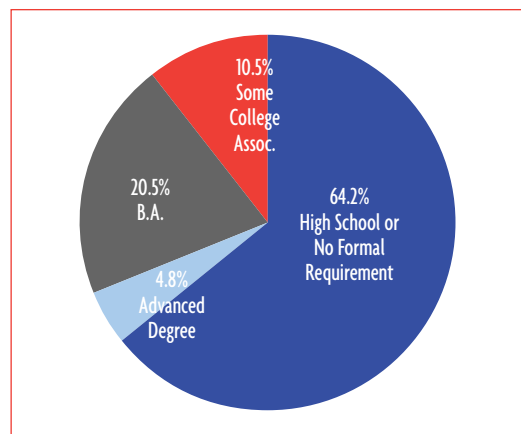
Therefore, it should not be too surprising that the projected job growth from 2014-2024, prepared by the Bureau of Labor Statistics (“BLS”), shows that nearly two-thirds of future jobs will only require a high school degree or less and only 20.5% of the jobs will require a bachelor’s degree for entry into the occupation.

The percent of the population 25-34 with a bachelor’s degree or higher is 36.1% (excluding college dropouts) but as we saw from the BLS data above, only 25.3% of new jobs in the next decade will need that level of education so there is an oversupply of college students (see below):



(a) Source: BLS. Total expected job openings (due to growth and replacements) 2014-2024. http://www.bls.gov/emp/ep_table_104.htm

(b) For people 25-34. Source: Camille L. Ryan and Kurt Bauman, Educational Attainment in the United States: 2015, March 2016 <https://www.census.gov/content/dam/Census/library/publications/2016/demo/p20-578.pdf>



Source: BLS. Total expected job openings (due to growth and replacements) 2014-2024. http://www.bls.gov/emp/ep_table_104.htm. The BLS assigns a 'typical education needed for entry' designation for each occupation. The chart shows the percent of jobs expected by that education designation.

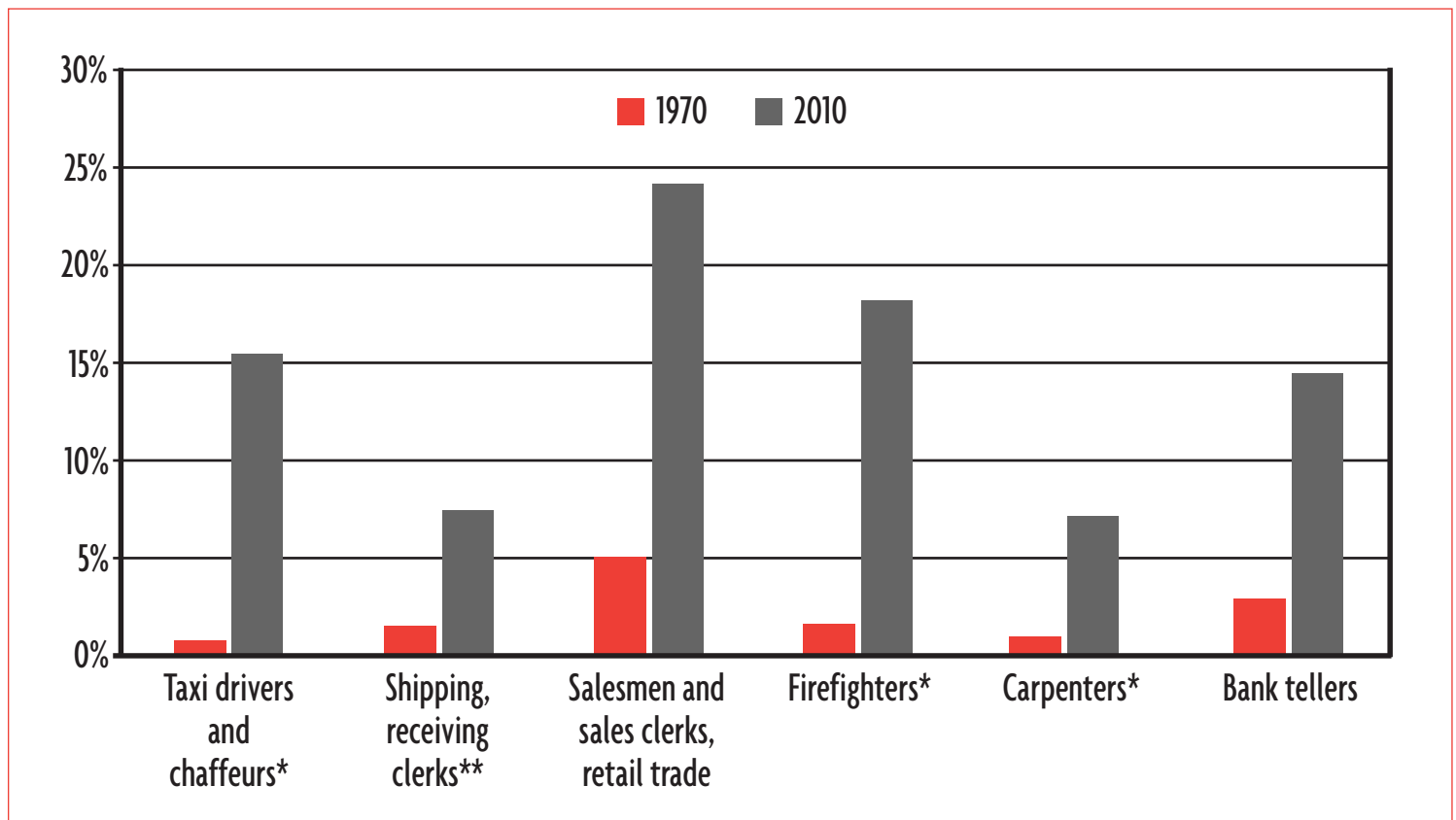
Methodology

The BLS projections are based on their economists assigning a 'typical education needed for entry' designation to each occupation using actual hiring patterns and their own judgment. With this methodology errors can occur but the BLS reevaluates the designations every two years. For example, prior to 2014, the BLS said that the typical education for a registered nurse was a two-year degree. That may have been true at one point but the BLS finally changed the designation to a four-year degree in 2014.

There are research sources that project that more good jobs are being created than does the BLS. For example, one source projects that 65% of jobs will require a postsecondary degree by 2020 of which 35% will need a bachelor's degree or higher and 30% an associate's degree or some college²⁴. According to this source, these proportions are similar to the existing degrees held by the workforce as of January 2016²⁵. What kind of methodology would produce such different results than the BLS? The methodology looks at actual hiring decisions by employers and assumes that the hiring of a college graduate by an employer means that the job requires more skill than if a high school graduate were hired. But there are several concerns with this model:

- **With this methodology, an oversupply of college graduates cannot happen.** In fact, an oversupply could only be interpreted as a demand by employers for greater skills. That would mean that for the occupations shown below—taxi driver, retail salesman, shipping clerks etc.—these occupations now require significantly more skill because of the large increase in college-educated employees. Does that seem realistic? Worse, the greater the oversupply, the more that methodology would show an increase in skills required by the economy and the greater need for even more college students—the exact opposite of what would actually be required.

Percentage of Employees in Select Occupations with a Bachelor's Degree or More, 1970 and 2010



Sources: U.S. Bureaus of the Census, Labor Statistics, and authors' calculations

Notes: *1970 data only available for working males. **1970 Data only available for working females. The "salesmen and sales clerk, retail trade" definition in 1970 becomes "retail salespersons" in 2010; the "shipping, receiving clerk" classification of 1970 becomes "shipping, receiving, and traffic clerks" in 2010.

Source: Richard Vedder, Christopher Denhart, and Jonathan Robe, *Why are Recent College Graduates Underemployed?* January 2013. <http://centerforcollegeaffordability.org/uploads/Underemployed%20Report%202013.pdf>

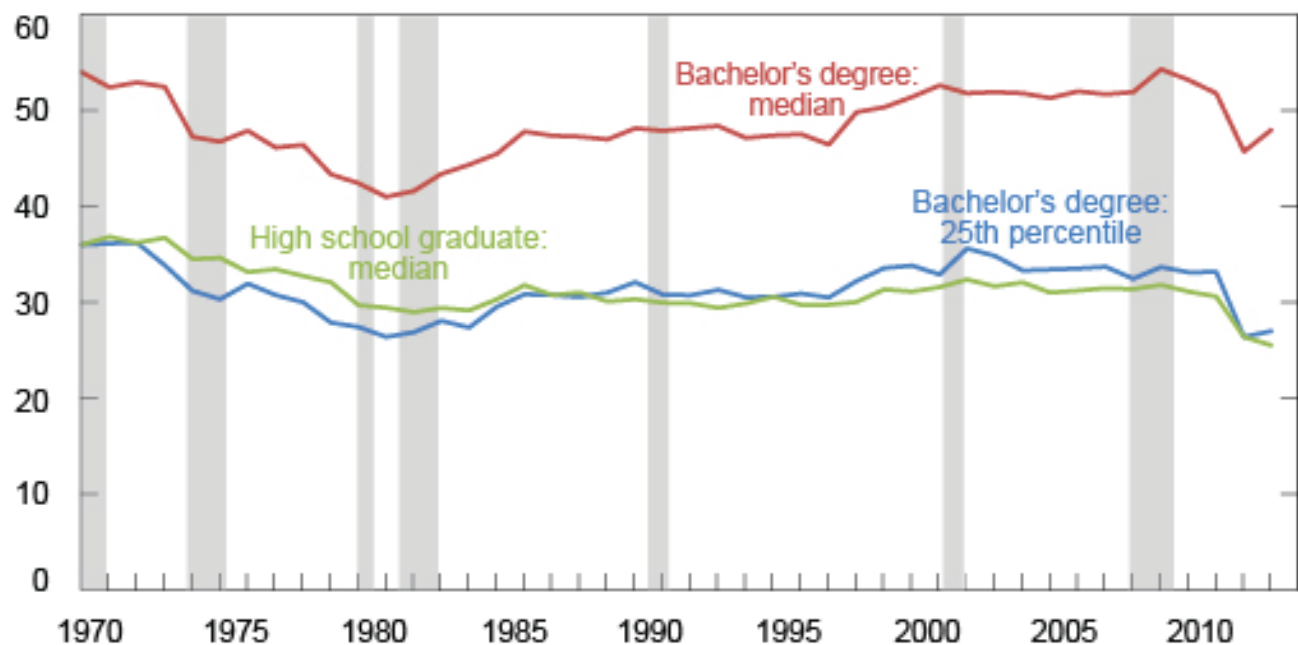
²⁴ Anthony P. Carnevale, Nicole Smith, and Jeff Strohl, *Recovery: Job Growth and Education Requirements Through 2020*, Georgetown University, 2014. (https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.ES_Web_.pdf)

²⁵ Anthony P. Carnevale, Tamara Jayasundera, and Artem Gulish, *America's Divided Recovery*, Georgetown University, 2016. (<https://cew.georgetown.edu/wp-content/uploads/Americas-Divided-Recovery-web.pdf>)

- One test of that thesis is income trends.** If college graduates are in such high demand and so many jobs require greater skill, then the incomes for bachelor's degrees should be increasing. Instead, the research often ignores absolute income trends and instead focuses on relative income trends, comparing incomes for bachelor's degrees to those of high school graduates. The wage gap between those education levels has, in fact, been increasing. But actual incomes for bachelor's degrees have been stagnant or falling since 2000 (see chart below). The chart also shows that 25% of graduates with a B.A. make no more than high school graduates. And the relative improvement over high school graduates—the “college wage premium”—actually reflects college graduates displacing high school graduates in lower paying jobs (as discussed below). The reason for the growing wage premium is due to the steeper decline in high school wages, not because of rising college wages.

Annual Wage by Education. 1970-2013

Thousands of dollars



Source: Jaison R. Abel and Richard Deitz, *College May Not Pay Off for Everyone*, Federal Reserve Bank of New York, Sept. 4, 2014. <http://libertystreeteconomics.newyorkfed.org/2014/09/college-may-not-pay-off-for-everyone.html#.V405j9rJD8>

Notes: Dollar figures are expressed in constant 2013 dollars. Shaded areas indicate periods designated recessions by the National Bureau of Economic Research.

As the economic recovery continues, it is to be expected that some increase in incomes will occur. However, this white paper is focused on long-term trends, not cyclical fluctuations.

- **An additional way to judge the methodologies is to look at actual jobs that are being created and the education classification of the BLS.** The table below shows the occupations with the most job openings (new positions plus replacement), projected by the BLS from 2014-2024, along with their median income and the typical education needed for entry. You can judge for yourself whether the education requirements are suitable for the specific occupation. Note that only three of the 20 occupations require a B.A. and most require no formal educational credential. Also note the median wages for those jobs. The economy does not seem to be producing an abundance of jobs requiring a college education.

Occupation	Job openings due to growth and replacements, 2014-24 (000)	Median annual wage, 2015	Typical education needed for entry
Retail salespersons	1,917.2	\$21,780	No formal educational credential
Cashiers	1,523.8	\$19,310	No formal educational credential
Combined food preparation and serving workers, including fast food	1,364.6	\$18,910	No formal educational credential
Waiters and waitresses	1,255.0	\$19,250	No formal educational credential
Registered nurses	1,088.4	\$67,490	Bachelor's degree
Customer service representatives	888.7	\$31,720	High school diploma or equivalent
Laborers and freight, stock, and material movers, hand	851.7	\$25,010	No formal educational credential
Office clerks, general	756.2	\$29,580	High school diploma or equivalent
Stock clerks and order fillers	689.0	\$23,220	No formal educational credential
General and operations managers	688.8	\$97,730	Bachelor's degree
Janitors and cleaners, except maids and housekeeping cleaners	605.2	\$23,440	No formal educational credential
Personal care aides	601.1	\$20,980	No formal educational credential
Nursing assistants	599.0	\$25,710	Postsecondary nondegree award
Home health aides	554.8	\$21,920	No formal educational credential
Accountants and auditors	498.0	\$67,190	Bachelor's degree
Maids and housekeeping cleaners	459.4	\$20,740	No formal educational credential
Cooks, restaurant	452.5	\$23,100	No formal educational credential
Maintenance and repair workers, general	443.7	\$36,630	High school diploma or equivalent
Childcare workers	441.3	\$20,320	High school diploma or equivalent
First-line supervisors of retail sales workers	411.3	\$38,310	High school diploma or equivalent

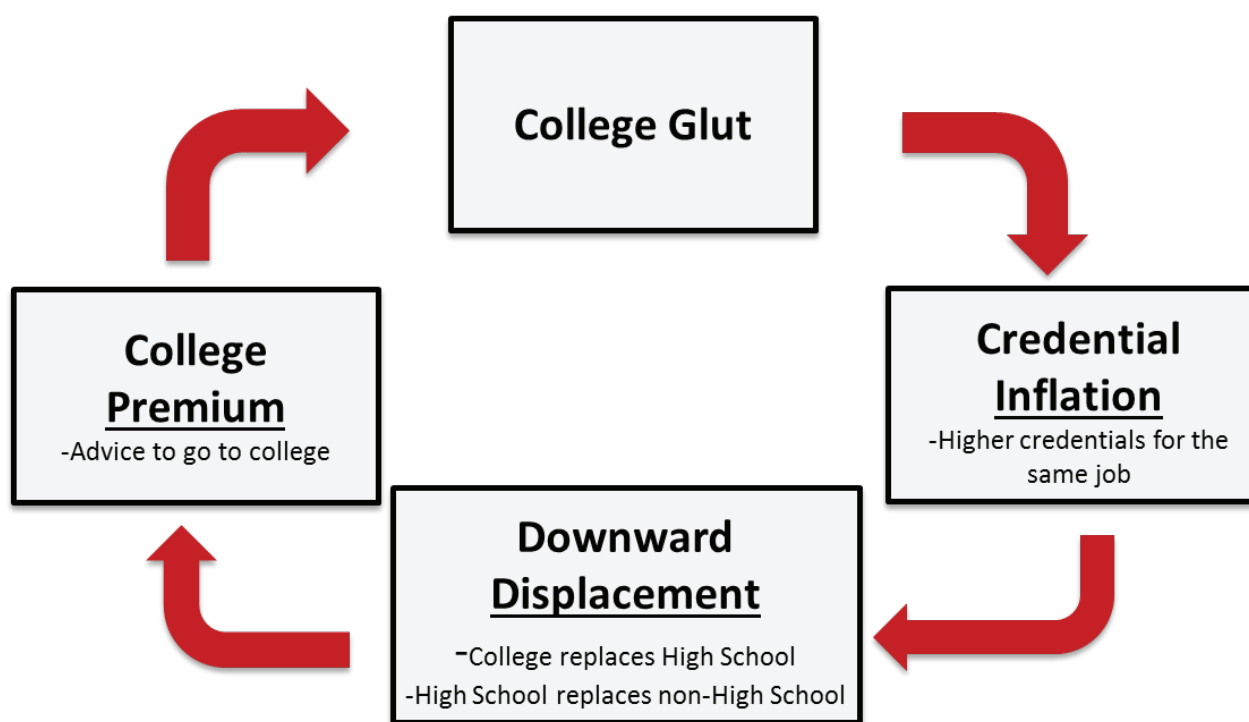
Source: BLS. http://www.bls.gov/emp/ep_table_107.htm

- **Another test would be to look at the real world and see which thesis best describes what we are seeing.** Are we seeing a rapid growth in skilled jobs and a shortage of college graduates? Are liberal arts students getting employed in good jobs because of strong employer demand? Or are we seeing a significant number of unhappy college graduates in lower wage jobs with too much student debt? The fact that there has been such a large increase in college graduates in the past decades means that many of today's college students would have been the high school graduates in the past. In that way, at least, 'the college degree is the new high school degree'. The concept of diminishing returns would also suggest that incremental gains from college education in the future will not be as great as the incremental returns in the past.

A variation of the “who employers hire” methodology considers the possibility of underemployed college graduates. Federal Reserve Bank of New York research assumes that a college job is one in which college grads are more than 50% of the workforce of that occupation. Based on that threshold, it found that underemployment of college graduates is approximately 44% for recent college graduates in 2012²⁶—not very different than Richard Vedder’s 48% based on BLS definitions. Moreover, it found that the quality of jobs (wage, part-time work) for the underemployed college grads has been deteriorating since 2000.

One final claim by the “college for all” advocates is that college can be justified by a lower unemployment rate. That claim is true but it doesn’t mean they are employed in good jobs. What is happening is the downward spiral shown below. A glut of college students means that employers can increase the credentials demanded for a particular job without paying more. But that means that high school graduates are squeezed out of jobs they could have obtained in prior years. That trend means that high school graduates see a sharp decline in the jobs available and the wages they can obtain with even less job security. But that trend also increases the income differential between college and high school graduates which advocates of “college for all” interpret as confirmation of a need for more college graduates.

High School Hurt Even More Than College Entrants



²⁶ Jason R. Abel, Richard Deitz, and Yaqin Su, Are Recent College Graduates Finding Good Jobs?, Federal Reserve Bank of New York, 2014. (https://www.newyorkfed.org/medialibrary/media/research/current_issues/ci20-1.pdf).

Earnings Outcomes for Associates Degree or Certificate

The College Scorecard shows earnings outcomes for an educational institution across all programs and all occupational outcomes. The Scorecard earnings outcomes also include the impact of any subsequent education the student had after leaving the institution being considered. Because it is difficult to extract occupation- or program-level detail from the College Scorecard data, I show below the BLS data for occupations whose typical entry requirement is an associate's degree or a postsecondary non-degree award.

Top 20 Occupations Requiring an Associate's Degree or a Postsecondary Nondegree Award— Ranked by Median Annual Wage

Occupation	Median annual wage, 2015	Annual openings due to growth and replacements, 2014-24
Air traffic controllers	\$122,950	750
Nuclear technicians	\$80,260	280
Radiation therapists	\$80,220	620
Captains, mates, and pilots of water vessels	\$76,780	1,720
Electrical and electronics repairers, powerhouse, substation, and relay	\$73,810	390
Nuclear medicine technologists	\$73,360	420
Ship engineers	\$72,870	350
Dental hygienists	\$72,330	7,030
First-line supervisors of fire fighting and prevention workers	\$72,230	3,340
Funeral service managers	\$70,890	740
Diagnostic medical sonographers	\$68,970	2,750
Magnetic resonance imaging technologists	\$67,720	980
Aerospace engineering and operations technicians	\$66,180	320
Web developers	\$64,970	5,860
Insurance appraisers, auto damage	\$64,020	380
Computer network support specialists	\$62,250	3,690
Engineering technicians, except drafters, all other	\$61,260	1,710
Electrical and electronics engineering technicians	\$61,130	3,410
Electrical and electronics drafters	\$59,520	520
Electrical and electronics installers and repairers, transportation equipment	\$58,990	320

Source: BLS. http://www.bls.gov/emp/ep_table_104.htm

The table above shows some high median earnings for those occupations but those occupations can be relatively small, some below 500 new job openings (new positions plus replacement) per year. In order to give a more complete perspective, the following table includes the same information but only for occupations which have 5,000 or more job openings each year. The table includes all occupations meeting that criterion. Note that within each occupation there are better and worse jobs. An automotive technician can be employed as a gas station mechanic or as a master mechanic at a dealership. The median earnings numbers are a blend across all those jobs.

Occupations Requiring an Associate's Degree or a Postsecondary Nondegree Award with Annual Job Openings Exceeding 5,000—Ranked by Median Annual Wage

Occupation	Median annual wage, 2015	Annual Job openings due to growth and replacements, 2014-24
Dental hygienists	\$72,330	7,030
Web developers	\$64,970	5,860
Radiologic technologists	\$56,670	5,440
Physical therapist assistants	\$55,170	5,470
Paralegals and legal assistants	\$48,810	8,270
Firefighters	\$46,870	11,230
Heating, air conditioning, and refrigeration mechanics and installers	\$45,110	8,420
Licensed practical and licensed vocational nurses	\$43,170	32,220
Heavy and tractor-trailer truck drivers	\$40,260	40,450
Medical and clinical laboratory technicians	\$38,970	6,810
Automotive service technicians and mechanics	\$37,850	23,720
Medical records and health information technicians	\$37,110	7,120
Dental assistants	\$35,980	13,750
Library technicians	\$32,310	5,390
Emergency medical technicians and paramedics	\$31,980	9,800
Phlebotomists	\$31,630	5,160
Medical assistants	\$30,590	26,210
Preschool teachers, except special education	\$28,570	15,870
Nursing assistants	\$25,710	59,900
Hairdressers, hairstylists, and cosmetologists	\$23,660	21,210

Source: BLS. http://www.bls.gov/emp/ep_table_104.htm

The range of outcomes in this table is quite wide because this is a complete list. There are not many occupations requiring an associate's degree or certificate which have over 5,000 job openings per year. Automotive technician is one of these occupations.

Parents Need to be Wary of Conventional Education Wisdom

After learning more about the trends in the labor market and the mismatch between education and jobs, it is worthwhile to look at some conventional advice parents may receive about investing in education.

“Go to this school, it costs less”.

If parents need to be occupation-driven, then the graduation rates and expected income from an occupation need to be part of the education investment decision, not just cost. Parents need to evaluate the probability of their particular student being able to graduate from a particular major at a particular school and get a particular kind of job with an expected earnings outcome as well as a suitable career path. Or, in business terms, parents need to look at the potential return on educational investment, not just the size of the investment. The investment decision is difficult, but simplistic advice: “it costs less” isn’t adequate to determine true value or likely outcomes.

“College is a good investment—just look at how much more graduates make than high school grads”.

Would you consider investing in a project with someone who said it was good investment but assumed there was no risk? When parents or students look at investing in a college education, there is a significant risk of not graduating—approximately 40% of four-year college students and approximately 60%-70% of two-year college students drop out²⁷. Should that be ignored? That is what you are doing if you only look at what graduates earn. Furthermore we have already discussed the flaws in looking at relative incomes (see Appendix C and the section on the college oversupply). Just because the wage premium over high school is increasing doesn’t mean that college incomes are increasing—it only means that college students may be suffering less than high school graduates.

“College graduates make much more than high school graduates over the course of a lifetime”.

We have seen how much the labor market has changed since 2000 and how college outcomes have been impacted by an oversupply. We have also seen that future automation may radically change employment outcomes. Knowing that, would you put a lot of confidence in someone telling you that someone graduating from college in 2017 should experience the same kind of career trajectory as someone who graduated in the 1960s, 1970s, 1980s or even the 1990s? Probably not. But that is what is happening when people tell you about average incomes for bachelor’s degrees over a lifetime. The past is probably not a reliable predictor of the future in this case.

“Go to college, the average outcomes are very good”.

College outcomes vary dramatically depending on the nature of the student, the college attended, the program studied, the graduation rate, the employment rate, the job obtained, etc. Outcomes also vary by gender, income, ethnicity and many other factors. And with wage polarization in the labor market, outcomes are becoming even more varied. Average data is not helpful and can be misleading. In particular, parents need to make an assessment of the probabilities of their own student achieving different outcomes. Unfortunately, the investment decision for parents is complicated and getting good information is important but can be difficult.

²⁷ See NCES sources for graduation rates shown in an earlier footnote.

Implementing an Occupational Strategy

As mentioned in the introduction, two-thirds of college graduates are struggling to launch their careers²⁸. The big difference between them and the one-third who are successful? 80% of the successful graduates had at least one internship and 64% were sure of their major when they started college.

The process of developing an occupation strategy for parents might look as follows:

1. **Match the student's abilities/interests to different occupations.** There are many assessment tools that help students match their abilities and interests to different occupations, including free online tests. There are articles that help can you decide which ones to take (e.g. <http://www.wsj.com/articles/SB10001424052748704133804575198011745918470>; <http://www.monster.com/career-advice/article/best-free-career-assessment-tools>). This step could be started as early as middle school and be repeated in high school. Knowing what direction a student might go will also serve as a guide to help their students in school. For instance, if a student is struggling in math, but math is a needed skill for the occupation, it would be important to get help from the teacher or a tutor.
2. **Research on good, stable occupation in the future.** Parents need to narrow the range of occupations based on the prospects of those occupations, focusing on those with decent wages and attractive career paths that are relatively safe from automation and offshoring, have a shortage of candidates, show stability through a recession and several other criteria. This information is not always easy to obtain but new web sites are developing quickly. In addition to the College Scorecard, the U.S. Chamber of Commerce (<https://www.uschamberfoundation.org/blog/post/new-tool-could-help-narrow-skills-gap>) and certain states (<http://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2016/07/06/helping-high-schoolers-connect-degrees-to-dollars>) are producing new tools. The BLS Occupational Outlook Handbook is a good place to start (<http://www.bls.gov/ooh/>) because it informs about the occupation and discusses prerequisites and skills needed for the job; a study by Oxford economists ranks occupations on their likelihood of automation risk in the future. The information is contained in the appendix of that study. (http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf). Employment companies (e.g. Manpower, CareerBuilder, LinkedIn and Burning Glass) also provide data on current skills shortages, necessary skills and some idea of the backgrounds employers are seeking²⁹. These sites may also give parents and students some idea of the competition for particular jobs.
3. **Work experience and exposure to selected occupations while in high school.** As part of an effort to give the student work experience and the opportunity to narrow the range of potential occupations, a parent could help arrange summer jobs, internships, field trips etc. If a student is sufficiently interested, there are skill-building courses and even summer camps (e.g. <http://www.sylvanlearning.com/edge/sylvan-edge-camps>) that specialize in academic or career-focused activities. Some job experience is valuable so students learn the importance of reliability, appearance and getting along with others. They will also learn through experience what they like to do and don't like to do.
4. **What postsecondary educational path fits the occupation?** The initial task for parents at this stage is assessing the maturity and commitment level of the student. Many students are not ready for postsecondary education and the downside of dropping out or drifting aimlessly through college is increasing. For those students, parents might consider some nontraditional alternatives such as a gap year, apprenticeships, internships, or even the military. Entities like BridgeEdU are another way of getting ready for college. If the student is ready for postsecondary education, there are several criteria to judge institutions which differ from the criteria used by US News and other college ranking services:
 - What is the best major for a student with a particular occupation focus? The key is to have knowledge which will appeal to targeted employers.

²⁸ Jeffrey J. Selingo, *Two-Thirds of College Grads Struggle to Launch Their Careers*, Harvard Business Review, May 30, 2016. (<https://hbr.org/2016/05/two-thirds-of-college-grads-struggle-to-launch-their-careers>)

²⁹ Anna Louie Sussman and Melissa Korn, *Colleges Drill Down on Job-Listing Terms*, (<http://www.wsj.com/articles/colleges-drill-down-on-job-listing-terms-1459704268>)

- How difficult is admissions to that school for that major for particular types of students?
- What is the expected graduation rate in that major for particular types of students?
- What is the likely return on investment (expected earnings compared to the cost) based on graduates in the past 10 years? Is the monthly out-of-pocket cost and debt payment affordable based on what the student will earn?
- What is the quality of employers who recruit at the school? Does the school offer internships and part-time work with desirable employers in the target occupation?
- What percent of graduates in that major get good jobs in the related field?
- Is the career counseling service strong? What other employment support is available? Will the school help the student get a job upon graduation?
- Does the school provide adequate support (financial, academic, counselling, etc.) if the student will need it?