

# ProfitWise

news and views

Fall 2014

Career

Jobs

Talent

Strategy

Innovation

## TRAINING & DEVELOPMENT

Concept

Success

Employee

Goals

Learn

**From classroom to career:**  
*An overview of current workforce  
development trends, issues, and initiatives*

*Published by the Community Development and Policy Studies Division  
of the Federal Reserve Bank of Chicago*

# ProfitWise

news and views

*Profitwise News and Views* welcomes article proposals and comments from bankers, community organizations, and other readers. It is mailed (either electronically or via U.S. mail) at no charge to state member banks, financial holding companies, bank holding companies, government agencies, nonprofit organizations, academics, and community and economic development professionals.

You may submit comments or proposals, or request a subscription by writing to:

*Profitwise News and Views*  
Community Development and Policy Studies  
Federal Reserve Bank of Chicago  
230 South LaSalle Street  
Chicago, IL 60604-1413

or request at [CDPS-PUBS@chi.frb.org](mailto:CDPS-PUBS@chi.frb.org)

The material in *Profitwise News and Views* is not necessarily endorsed by and does not necessarily represent views of the Board of Governors of the Federal Reserve System or the Federal Reserve Bank of Chicago.

©2014 Federal Reserve Bank of Chicago

*Profitwise News and Views* articles may be reproduced in whole or in part, provided the articles are not reproduced or distributed for commercial gain and provided the source is appropriately credited. Prior written permission must be obtained for any other reproduction, distribution, republication, or creation of derivative works of *Profitwise News and Views* articles. To request permission, please e-mail or write to the address indicated above.

---

*Advisor*  
Alicia Williams

*Managing Editor*  
Michael V. Berry

*Assistant Editor*  
Mary Jo Cannistra

*Contributing Editors*  
Jeremiah Boyle  
Emily Engel  
Steven W. Kuehl  
Susan Longworth  
Robin Newberger

*Senior Designer*  
Katherine Theoharopoulos

*Designer*  
Sean Leary

*Web Content Specialist*  
Edwina Davis



This issue of *Profitwise News and Views* is printed on partially recycled paper.

Please Recycle After Reading

## Fall 2014

Extensive interviews conducted over the past two years as part of the Community Development and Policy Studies division's Industrial Cities Initiative emphasized workforce development as a central concern among city leaders in the Seventh District. In an effort to clarify specific concerns falling under the umbrella of this multi-faceted topic, this edition of *Profitwise News and Views* explores a range of current issues. Among other topics, we highlight: workforce-focused programs and research around the Federal Reserve System; trends in educational attainment and (resulting) wage disparity; skills gaps among those seeking work; employer efforts to train workers; and examples of current workforce development initiatives in the District.

---

### The Federal Reserve Bank of Chicago

The Federal Reserve Bank of Chicago and its branch in Detroit serve the Seventh Federal Reserve District, which encompasses southern Wisconsin, Iowa, northern Illinois, northern Indiana, and southern Michigan. As a part of the Federal Reserve System, the Bank participates in setting national monetary policy, supervising banks and bank holding companies, and providing check processing and other services to depository institutions.



# Introduction

by Emily Engel, Daniel DiFranco, and Ryan Patton

---

Earlier this year, Community Development and Policy Studies (CDPS) staff at the Federal Reserve Bank of Chicago released a report on its Industrial Cities Initiative (ICI).<sup>1</sup> The report features a quantitative assessment of ten Midwestern “industrial cities” that is augmented by more than 175 interviews with city leadership. The report explores whether – and to what extent – these cities have been able to withstand a decline in manufacturing employment since the 1960s. Workforce development was the most common and the most vexing issue identified by leaders in every ICI city profiled in the report.

Challenges faced by Seventh District communities concerning workforce development – an umbrella term that describes coordinated efforts to prepare and match workers with living-wage jobs in a manner consistent with market realities – are especially daunting given the varying underlying issues. A high school graduate deciding which post-secondary credential to pursue, for instance, faces a very different set of circumstances than an ex-offender addressing a criminal history during the employment application process. Likewise, successful efforts must effectively coordinate the resources, responsibilities, and interests of numerous stakeholders, including CDCs, private industry, the educational sphere, and multiple layers of government. To complicate matters even further, local efforts that aim to ground connections between education and employment outcomes invariably take place within the context of a shifting global marketplace.

Fortunately, the dynamism of devoted practitioners, researchers, and policymakers is commensurate with the set of issues they've chosen to confront;

accordingly, it's important to survey from time-to-time the landscape of current approaches. Toward this end, this edition of *Profitwise News and Views* offers the following collection of articles and insets.

This edition begins by documenting a key labor market shift impacting virtually every facet of modern workforce development. Specifically, *Employment Polarization and its Discontents: A Tale of Two Tails* describes the steady replacement of middle-wage (and presumably middle-skilled) jobs by low- and high-wage jobs. The significance of this single descriptive fact, we argue, is a matter of perspective. On the one hand, employment prospects of high school graduates have become compromised to the point of undermining this group's attachment to the labor force. On the other hand, the rising cost of skill is a likely culprit behind widespread perception of a 'skills gap' among employers.

While the first article focuses mostly on the impact of collapsing demand for middle-skilled workers, *Is a College Education Worth the Cost? A Risk/Reward Perspective* examines the puzzling trend of slowdowns in educational attainment despite rising demand for high-skilled workers. In the process, the article cites research showing investments in college education generally outperform investments in stocks and bonds by a wide margin. However, as with any investment, there is risk. After touching upon several sources of risk, the article focuses on the most concerning: the high incidence of students enrolling in but not completing college. Using national data, the article concludes with a discussion of how this trend has affected states in the 7th District.

While low educational attainment is certainly disadvantageous, it is not the only barrier to employment and economic mobility. Life challenges such as long-term unemployment, lack of childcare options, and health/healthcare issues also separate potential workers from gainful employment. To provide insight into strategies for addressing obstacles to work, *The Cara Program: Workforce development one life at a time*, highlights a Chicago-based community organization that provides a persistently challenging – yet highly supportive – environment within which individuals may cultivate the soft skills necessary for navigating the modern workplace.

In addition to their main program, Cara also administers smaller programs that focus on formerly incarcerated individuals. The barriers to employment this group faces are often so high that Cara operates a separate landscaping social enterprise through which those with criminal records may obtain work experience. The lengths through which Cara must go to facilitate re-entry of ex-offenders into the workforce points to a much broader national problem, the key features of which are documented in the inset entitled *Second chances in the land of opportunity*.

Whether through increasing formal educational attainment or addressing broader life challenges, the task of connecting today's workers with today's jobs is both important and immediate. Accordingly, considerations of workforce development over longer time horizons can lose urgency, though much research has underscored the value of early education in improving employment outcomes decades later. Our section entitled *Early childhood education: "Workforce development" for the long run* highlights the work of advocates to bring this research to bear on policy. Emerging insights into developmental psychology and brain science, they argue, point to early-childhood as a critical window within which the development of key emotional skills may be set on course at relatively low cost.

We also note the efforts of individual Reserve Banks across 12 districts reflect the Federal Reserve System's commitment to promoting workforce development as a means toward enhancing the economic vitality of communities. While by no means a comprehensive list, we highlight various System initiatives in this vein.

## Workforce development guides community outreach efforts across the Federal Reserve System

The Kansas City and Atlanta Feds cohosted a conference entitled, “The Future of Workforce Development: Where Research Meets Practice,” in September 2012. The conference provided a forum to exchange views on “challenges employers face in finding skilled workers and the need for job applicants and workers to keep up with changing technologies. Panelists also discussed the need to strengthen partnerships between educational institutions and industry, changes in demographics affecting the work place, and the value of encouraging entrepreneurship.” The two Banks extended this discussion in a similar conference entitled, “Transforming the U.S. Workforce Development Policies for the 21st Century.”

In the same vein, the Philadelphia Fed spearheaded efforts to convene community development professionals, academics, and leaders from the public and private sectors in a “Reinventing Older Communities: Bridging Growth & Opportunity” conference held in May 2014, an event co-sponsored with seven other Federal Reserve Banks – Atlanta, Boston, Chicago, Cleveland, New York, Richmond, and St. Louis. The conference included topically focused sessions, such as: “On the Road to Jobs: Transportation’s Role in Connecting Low- and Moderate-Income Workers to Employment.” In this session, panelists outlined “the features of an equitable, regional transportation system with the power to create opportunity and jobs for traditionally underserved populations” along with the implication of these features in terms of “how new transportation projects – large and small – are being approached differently to create jobs and training opportunities for low- and moderate-income workers.”

Recent activities coordinated by the San Francisco Fed provide several additional examples of involvement in the workforce development area. Among other things, FRBSF held a forum focusing on the Arizona workforce, the findings of which helped to inform a subsequent paper that examined the “Workforce Development Needs for Immigrant Job-Seekers.” Furthermore, San Francisco also investigated the

special case of workforce development during a downturn in a piece entitled “Lessons for a New Context: Workforce Development in an Era of Economic Challenge.”

Most recently, in June 2014, the Chicago Fed hosted a roundtable entitled: “A Conversation on Apprenticeships in Manufacturing.” This session explored expanding relationships between community colleges, trade organizations providing training, and manufacturers needing skilled workers. At the session, Secretary of Labor Thomas Perez called the apprenticeship model a “linchpin” and a “catalyst” towards sustainable economic vitality and job growth in the country. It was one in a series of roundtables across the country to raise awareness of and gain feedback on Department of Labor efforts to boost both training and employment.

## Notes

1. Federal Reserve Bank of Kansas City, 2012, “Kansas City Fed Brings Experts Together to Address the Future of Workforce Development,” Community Connections, Fall, available at <http://www.kansascityfed.org/publicat/community/connections/fall-2012.pdf>.
2. Federal Reserve Bank of Atlanta, Community Development, available at [http://www.frbatlanta.org/pubs/partnersupdate/14noi\\_workforce\\_dev\\_conference.cfm](http://www.frbatlanta.org/pubs/partnersupdate/14noi_workforce_dev_conference.cfm).
3. Federal Reserve Bank of Philadelphia, Reinventing Older Communities: Bridging Growth & Opportunity, available at <http://www.philadelphiafed.org/community-development/events/2014/reinventing-older-communities/agenda.cfm>.
4. Federal Reserve Bank of San Francisco, Arizona Workforce Development Forum, available at <http://www.frbsf.org/community-development/events/2012/may/arizona-workforce-development-forum>.
5. Cytron, Naomi, “Workforce Development Needs for Immigrant Job-Seekers,” Federal Reserve Bank of San Francisco, available at [http://www.frbsf.org/community-development/files/Cytron\\_Naomi\\_CI\\_spring\\_2009.pdf](http://www.frbsf.org/community-development/files/Cytron_Naomi_CI_spring_2009.pdf).
6. Giloth, Robert P., “Lessons for a New Context: Workforce Development in an Era of Economic Challenge,” Federal Reserve Bank of San Francisco, available at [http://www.frbsf.org/community-development/files/Giloth\\_Robert.pdf](http://www.frbsf.org/community-development/files/Giloth_Robert.pdf).
7. Keller, Jason, 2014, “CDPS hosts a conversation on apprenticeships in manufacturing,” CDPS Blog, Federal Reserve Bank of Chicago, August 6, available at <http://cdps.chicagofedblogs.org>.

# Employment polarization and its discontents: A tale of two tails

---

The term "skills mismatch" – also referred to as "skills gap" and "skills shortage" – evokes a view of the labor market that gained currency in fields ranging from business to politics and even community development (at least in colloquial usage; see inset for a more formal use of the term). Corporate leaders like Jeff Immelt and Ken Chenault, for example, opined in the *Wall Street Journal* that "there are more than two million open jobs in the U.S., in part because employers can't find workers with the advanced manufacturing skills they need. The private sector must quickly form partnerships with community colleges, vocational schools, and others to match career training with real-world hiring needs."<sup>2</sup> Wide acceptance of this notion is further exemplified by – as an article written in *The Atlantic* observed – one rare area of agreement among the 2012 presidential candidates "that skills of U.S. workers don't match the needs of the nation's employers."<sup>3</sup> Even we in Community Development and Policy Studies (CDPS) have employed this narrative on occasion to frame the challenges of connecting individuals with career paths through education.

This once mainstream view has since been challenged. In a *New York Times* article entitled "Skills Don't Pay The Bills," for instance, Adam Davidson makes the case that the skills gap perception is largely driven by unreasonable expectations surrounding how much skill money can buy: "At GenMet [a Wisconsin-based metal-fabricating manufacturer], the starting pay is \$10 an hour. Those with an associate degree can make \$15, which can rise to \$18 an hour after years of good performance. From what I understand,

a new shift manager at a nearby McDonald's can earn around \$14 an hour."<sup>4</sup> Similarly, a 2013 Boston Consulting Group study that found no unusual increases in the wages of manufacturing occupations between 2005 and 2010 bluntly stated "trying to hire high-skilled workers at rock bottom rates is not a skills gap."<sup>5</sup>

Such counterpoints beg the questions: are employers justified with appeals for public-private partnerships; i.e., deploying taxpayer dollars at community colleges to address employer training needs? Could it be that what's changed is employer willingness to compensate and train employees, as opposed to factors more deeply rooted in the workforce?

The terms "mismatch," "gap," and "shortage" represent reactions to a profound shift that warrants exploration. Importantly, however, the reactions are those of employers; as such, adopting these terms in the policy arena – whether deliberately or just for the sake of convenience – risks steering public discussion away from even considering questions like the ones posed above.

In contrast, the alternate term "employment polarization" avoids this hazard by simply referencing the shift itself: mounting evidence suggests that demand for high- and low-skill work has increased, while demand for middle-skill work has decreased. There are many ways to interpret this single, powerful phenomenon; which interpretation one gravitates toward is likely to depend on one's perspective. After describing polarization in greater detail, this

## Is there a skills mismatch: a technical view

With unemployment rates remaining high, even after the recession, many have speculated about a possible skills mismatch in the labor market. Economists at the Federal Reserve are especially interested in signs of a skills mismatch because it leads to unemployment that cannot be directly influenced by monetary policy. Though some industries and trade organizations have reported ongoing mismatch for several decades, monetary policymakers are typically concerned with how mismatch might relate to the short-term unemployment rate. They generally view the notion of a mismatch through the framework of labor search, where workers and jobs fail to match due to either wages or limited mobility. Mismatch is then considered a relatively temporary state until workers or wages adjust.<sup>1</sup> In a July 2012 *Chicago Fed Letter*, senior economists Jason Faberman and Bhashkar Mazumder presented statistical evidence for a state of mismatch in the post-recession period.<sup>2</sup> Their results were mixed, suggesting a possibility of mismatch among workers in occupations requiring a moderate amount of skills.

One way to measure (the degree of) mismatch is to compare the job vacancy rate and the unemployment rate. As jobs become increasingly available, one would expect unemployment to decrease. If, however, unemployment moves relatively little, then the skills of available workers may not meet the requirements of open jobs. Indeed, Faberman and Mazumder report that overall increases in the job vacancy rate did little to abate the unemployment rate following the latest recession. Economists at the New York Fed analyzed these data further and developed an index of mismatch in the overall labor market.<sup>3</sup> On their measure, mismatch spiked considerably during the recession but has since subsided to prior levels.

Low levels of mismatch in the overall labor market, however, do not preclude the possibility of significant mismatch within certain submarkets.

To explore this possibility, Faberman and Mazumder look for imbalances in the supply and demand of labor by skill level. On the supply side, they illustrate the relative abundance of workers in the middle range of skills by comparing employment levels before and after the recession for all skill groups. Employment for middle-skill workers fell the most at 9.1 percent

between 2007 and 2011. Employment of high-skill workers fell only 0.5 percent over the same period, indicating their relative scarcity and demonstrating the differential effects of the recession. However, they find little evidence of supply constraints for those sometimes reported to be scarce, such as “installation, maintenance, and repair workers.”

On the demand side, they analyze online help-wanted ads by skill level. Using this data, they find a general increase in the demand for labor across all skills, but especially for jobs requiring a moderate level of skills. Taken together, the persistently low employment rate of middle skill workers combined with rising demand for the same skill level may be evidence of mismatch. Workers with mid-level skills may not have the *right* skills for the available middle-skill jobs. Based on these results, Faberman and Mazumder report that any mismatch in the labor market would likely be most prominent for this group.

## Notes

1. Shimer, Robert, 2007, “Mismatch,” *American Economic Review*, Vol. 97, No. 4, September, pp. 1074-1101, though a more recent model by Shimer allows mismatch in equilibrium.

2. Faberman, R. Jason, and Bhashkar Mazumder, 2012, “Is there a skills mismatch in the labor market?” Federal Reserve Bank of Chicago, *Chicago Fed Letter*, July, No. 300.

3. Sahin, Aysegül, Joseph Song, Giorgio Topa, and Giovanni L. Violante, 2011, “Measuring mismatch in the U.S. labor market,” Federal Reserve Bank of New York, working paper, revised July.



article will explore two such perspectives: that of 1) high-school-educated men, and 2) employers in the manufacturing industry.

## Overview of employment polarization

The term “employment polarization” describes a broad, secular increase in high- and low-skilled employment in conjunction with shrinking employment among middle-skilled occupations. David Autor – from whose work this article draws heavily – is one of many economists who have documented and sought to explain this shift. In a report released jointly by the Center for American Progress and the Hamilton Project, for example, Autor depicts this trend by graphing changes in employment share across the full range of skill for the past three decades (see figure 1a).

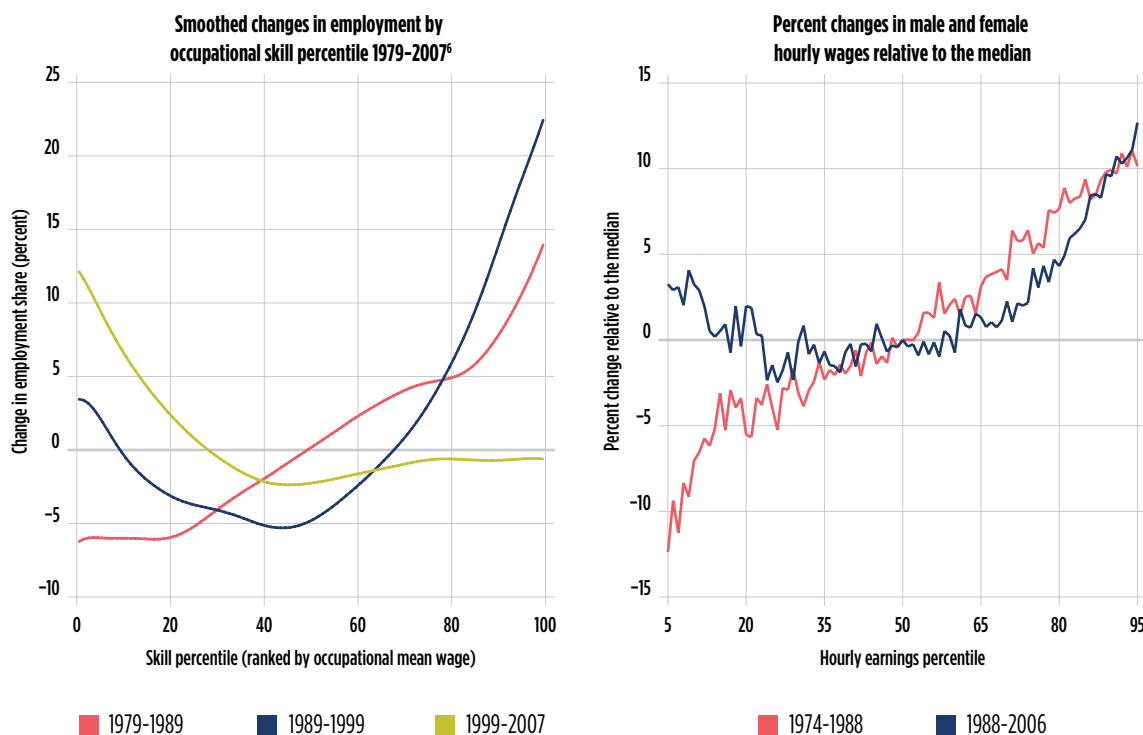
To interpret this graph, it’s helpful to compare each curve with the horizontal axis at 0 percent. If the composition of employment with respect to skill level

were constant over time, we’d expect employment at each skill percentile to grow (or shrink) at the same rate as employment in general; in this case, the series would coincide with the x-axis. In contrast, a skill percentile gained employment share during a given decade if the corresponding section of the curve is in positive territory, lost employment share if in negative territory, or retained a constant share of employment if at zero.

Using this as a guide, it’s clear that U.S. employment shifted sharply from lower- to higher-skilled work in the 1980s, and, less dramatically, from high- and mid-skilled to low-skilled work in the 2000s. Interestingly, the 1990s is a microcosm of all three decades combined: that decade’s u-shaped pattern signifies the same “hollowing out” of middle-skilled occupations that characterizes the cumulative 30-year period in general.

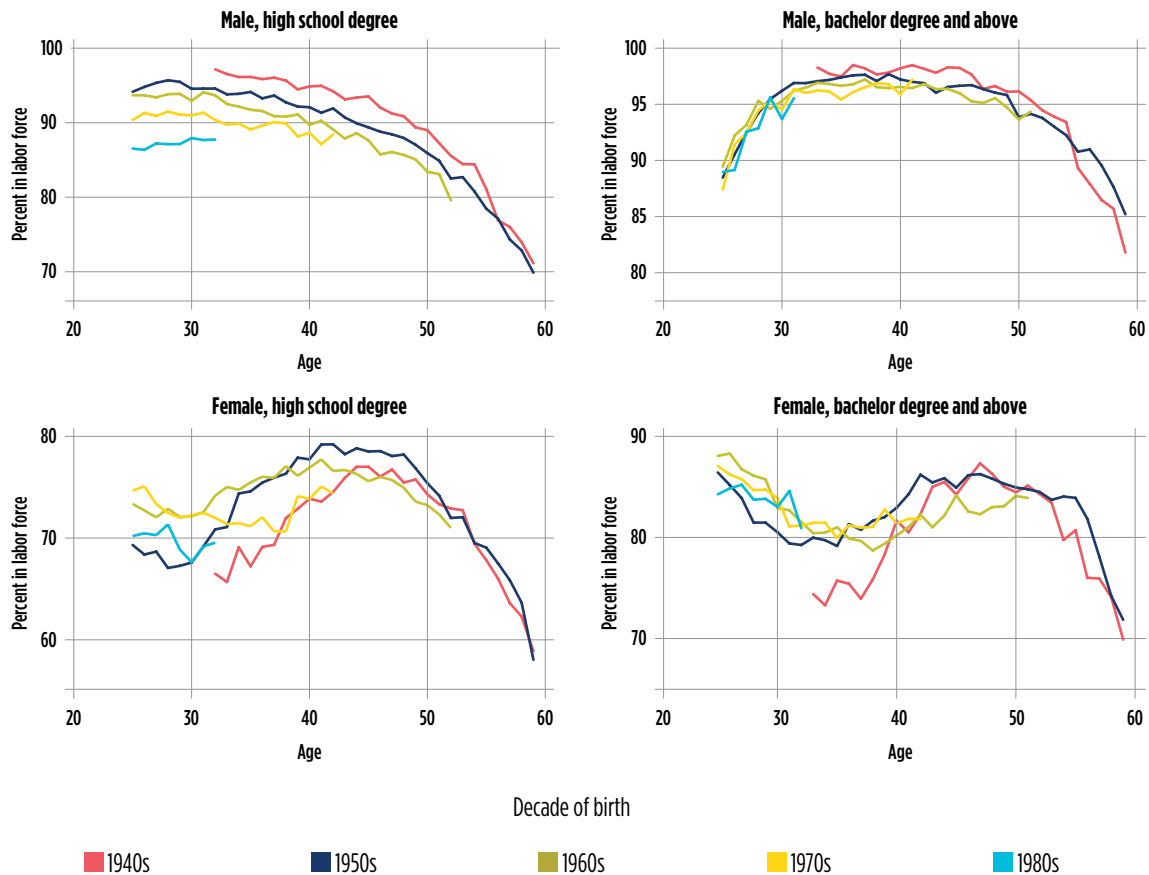
Figure 1b uses a similar scheme to depict wage changes with respect to skill level.<sup>7</sup> According to

Figures 1a and 1b.



Source: David Autor calculations based on data from the U.S. Census Bureau.

**Figure 2. Labor force participation across the work-span by birth cohort**



Source: Current Population Survey as obtained through IPUMS.

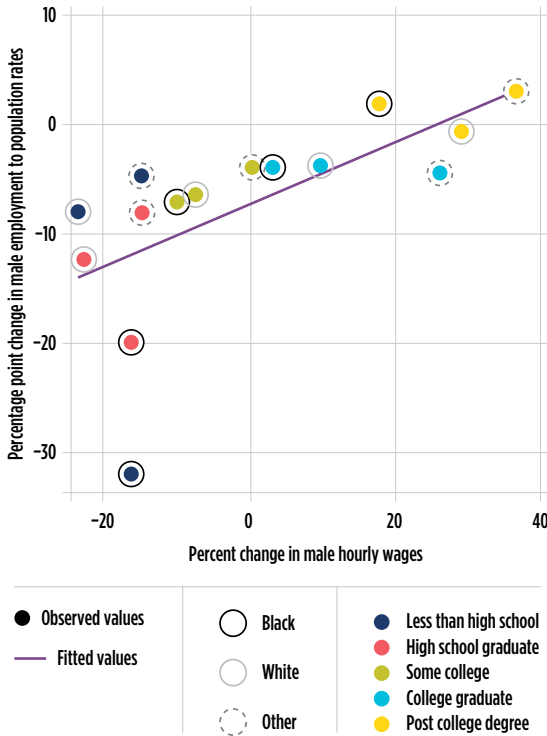
this graph, real wages have grown consistently and markedly in high-skill occupations, but have declined or remained stagnant in middle- and low-skill occupations. Together, these figures illustrate a coincidental increase in both employment share and wages at the higher end of the skill spectrum; this in turn suggests a shift in *demand* for highly skilled workers (as opposed to changes in the preferences or composition of the workforce).

In the course of examining demand-related factors that may account for this shift, Autor suggests that a “cumulative decline of at least a *trillion-fold* in the cost of computing” over the past six decades created “enormous incentives for employers to substitute information technologies for expensive labor in performing [routine] workplace tasks.”<sup>8</sup> According to this explanation, the relative ease with which many

middle-skill occupations could be automated helps explain their decline. At the same time, workers with the skills necessary for interacting with new labor-saving technologies have seen their wages increase.

While non-technological factors such as increased competition from abroad and the declining influence of unions may account for some degree of polarization in the U.S., similar shifts are occurring in industrialized economies worldwide.<sup>9</sup> For Autor, this suggests that employment polarization is essentially a result of automation’s effect on the premium employers are willing to pay for skill sets, and a parallel decline in employers’ willingness to hire people to perform routine tasks.

**Figure 3. Relationship between male employment to population rates and male earnings for persons ages 25-39, 1979-2008**



Source: Melanie Wasserman and David Autor calculations based on Census IPUMS 5 percent samples for 1980, 1990, and 2000 and American Community Survey (ACS) 2009.

### High-school-educated men: A view from the supply side

The data support a fairly predictable trend: it's becoming increasingly difficult for individuals with only a high school diploma to find well-paying jobs. Less obviously, the evidence also suggests that disadvantages corresponding to having only a modest level of education are particularly acute among men.

Rates of labor force participation – the fraction of individuals who are either working or looking for work – helps illustrate these assertions insofar as they capture the tradeoff between work and leisure or household production. Wages for individuals who work, in other words, are presumably high enough to justify their preference for employment

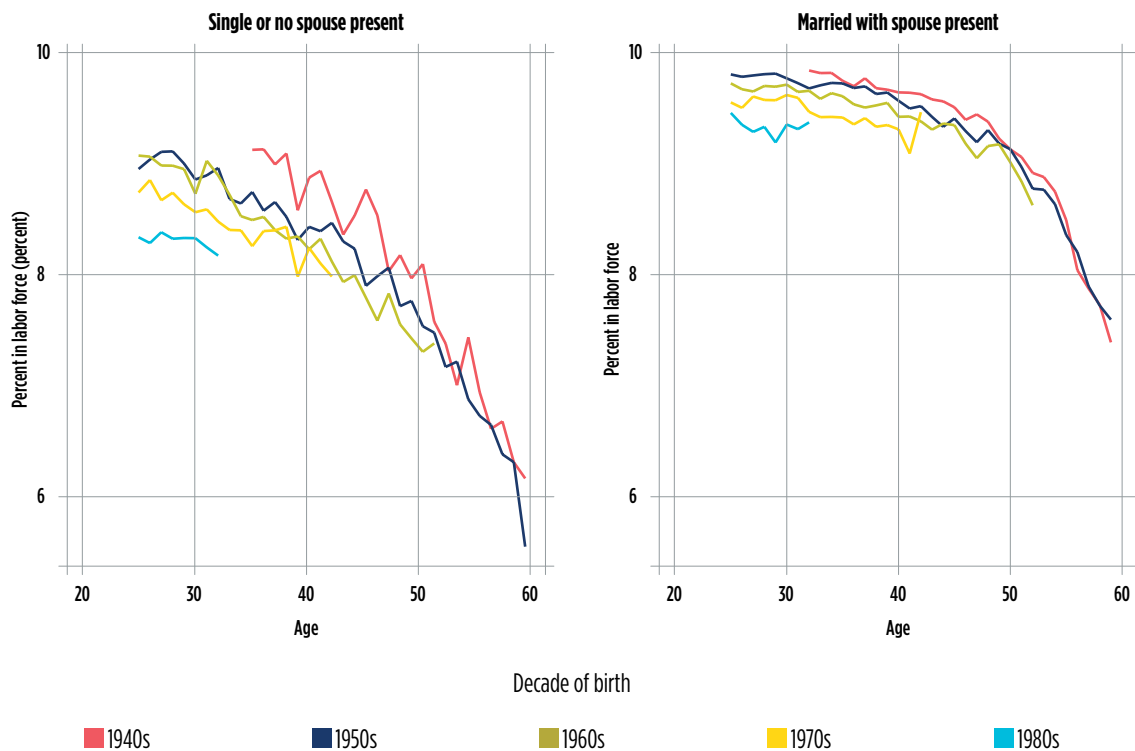
over the alternatives. As figure 2 shows (page 7), participation across working life follows a distinct pattern depending on gender and education. For men with higher levels of education, the likelihood of participation builds in the 20s and peaks in the 30s. In contrast, participation among men with a high school diploma but no post-secondary experience is highest at the start of the work span, and declines steadily from there.

Participation among women of both education levels follow a distinct S-shape, the first dip of which most likely corresponds to having children and subsequently caring for them. The timing and extent of this dip, however, varies by education level: the dip occurs early and is not very pronounced for high-school-educated women, and occurs later and within a more well-defined timeframe for women with a bachelor's degree or higher. This difference is consistent with the commonly accepted idea that more highly educated women tend to delay having children because of the relatively high opportunity cost this demographic faces in terms of lost wages and advancement.

For men and women with at least a bachelor's degree and – for the most part – women with high school diplomas, participation patterns across the generations are consistent not only in terms of their shape, but also in terms of their levels. For men with only a high school diploma, however, each generation is progressively less likely to participate across all phases of working life aside from the period immediately preceding retirement. To provide a full sense of the cumulative difference, a high-school-educated man born in the 1940s was 9.4 percentage points more likely to be working or seeking work at the age of 32 than his counterpart born in the 1980s.<sup>10</sup> Furthermore, the pace of this downward progression between generations shows no sign of slowing, as indicated by the relatively even spacing between the curves. (In fact, if the progression were depicted in terms of a percent of a percent, the trend would actually appear to be accelerating due to the constant decline despite the shrinking base.)

It's important to note that participation rates by themselves are purely descriptive; to make the case that the lower participation we observe among high-

**Figure 4. Labor force participation of high-school educated men across the work-span by birth cohort**



Source: Current population survey as obtained through Integrated Postsecondary Education Data System.

school-educated men stems from declining demand for middle-skilled occupations, one would first need to acknowledge that the decision to participate is also influenced by (within-household) factors like the divisions of chores and caregiving responsibility. Likewise, factors outside the household – such as the generosity of unemployment benefits and other government transfers – may also be relevant. In *Wayward Sons*, David Autor and Melanie Wasserman propose an interesting third possibility: the lack of same-sex role models in increasingly common single-mother family arrangements may negatively affect both educational and labor force outcomes for young men.<sup>11</sup> Accordingly, it could be that participation of men with only a high school degree has declined because of a deterioration of soft skills within that subgroup. Such a scenario, while unfortunate, would be independent of employer demand.

As a first step toward disentangling supply-side factors like these from employer demand, Autor and Wasserman present summary evidence relating

employment-to-population ratios to wages. To construct figure 3,<sup>12</sup> Autor and Wasserman segment men into groups based on race and education, and then plot changes in the employment-to-population ratios of these groups against corresponding wage changes. The signature of a demand shock – equilibrium quantity and price changing in the *same* direction – is apparent given the strong, positive relationship between the two aggregate variables.<sup>13</sup> Given wage stagnation within the middle portion of the skill spectrum, it seems plausible that it's the demand-oriented forces of polarization – not some change in men's preference for leisure or household production – that explain intergenerational declines in male high school graduate labor force participation.

What might these trends imply for a male high school graduate? Perhaps these changes aren't entirely negative – declining opportunities in the employment sphere, for example, may have induced men to contribute more to caregiving and household chores, the responsibility for which tends to fall

disproportionately on women. However, as figure 4 shows, the intergenerational decline in participation observed among high-school-educated men is noticeably more pronounced for the single male, suggesting labor force disconnection is not necessarily occurring in conjunction with a renegotiation of household production.

Davidson hints at a likelier interpretation of polarization from the perspective of this deeply affected subgroup: “In retrospect, the post-World War II industrial model did a remarkably good job of supporting a system in which an 18-year-old had access to on-the-job training that was nearly certain to pay off over a long career...Manufacturers, of course, have responded over the past 20 years by dismantling it.”<sup>14</sup> To a male of modest education, polarization may equate to a breakdown of this model.

## Employers in manufacturing: A view from the demand-side

Just as high-school-educated men are struggling with less demand for middle-skill labor, some employers face challenges accessing the sort of higher skilled labor technology has made so valuable. Among manufacturing employers, the character of this challenge is often subtle: while increased openings for high-tech sounding job *titles* like “industrial engineer” and “programmer of computer numerically controlled (CNC) machines” represent obvious increases in demand for skill along the extensive margin, anecdotal evidence suggests demand increases along the intensive margin have also taken place through evolving job *descriptions*.<sup>15</sup> For example, Valley Industrial Association president Cindy Tomei points out that the same high school graduate who was qualified to be a welder in the 1980s may not be qualified to be a welder in today’s world. Because of the increased need to interact with complex machinery, an ideal candidate would possess some post-secondary training. While a four-year bachelor’s degree would not be necessary, apprenticeships or coursework at a community college – perhaps even an associate degree – are desirable.<sup>16</sup>

Incremental demand increases like these along the intensive margin – a phenomenon hereafter referred to as “upskilling” – are particularly difficult to grasp

given a natural tendency to qualitatively group occupations into “low-”, “middle-”, and “high-” skilled. In manufacturing, much of the increase in demand for skill corresponds to differences in degree rather than differences in kind. Specifically, it seems qualifications of traditionally middle-skilled jobs have progressed over time toward the threshold of what one might call high-skilled. The fact that qualifications haven’t quite crossed that threshold should not be mistaken for stasis.

In any event, Tomei outlines a broadly shared set of concerns to which these demand increases have given rise:

- First and foremost, there are too few qualified applicants to meet demand. Applicants might lack the right “hard skills” such as moderately advanced math ability and the ability to interpret blueprints, as well as “soft skills,” like the ability to communicate effectively and maintain a consistent work ethic. For one employer, the problem is so severe that “if a qualified welder showed up at the door, they would hire them whether they had a job or not.”
- A perception problem. Many parents of high school students, for instance, are steering their children away from employment opportunities in manufacturing, which they believe to be insecure and entailing unpleasant work conditions. This perception might partially explain the disappearance of shop class from high school curricula, and hinders efforts to appeal to women, who are vastly underrepresented in the field.
- A deepening of these problems will occur in the near future as a large wave of older workers begins to retire.

In terms of the scope of the perceived skill shortage:

- The shortage applies to high- and upper-middle skilled positions. (Employers are not having trouble filling positions at the lower end of the skill spectrum.) Tomei notes that occupations in particularly high demand include welders, machinists, and persons who can maintain and repair equipment.

## Employer involvement

Is there a “skills gap”? Manufacturers often note a lack of qualified applicants for skilled positions, but a growing number of researchers take issue with the term. Paul Krugman, for example, refers to the skills gap as a “zombie idea” that refuses to die, regardless of any evidence produced against it.<sup>1</sup> In economics, a shortage of workers should lead firms to raise wages, thereby attracting talent from other parts of the economy. Yet real wages in manufacturing have remained flat or fallen. Consequently, some have even suggested the term merely provides a talking point that enables employers to deflect responsibility for investing in workers.

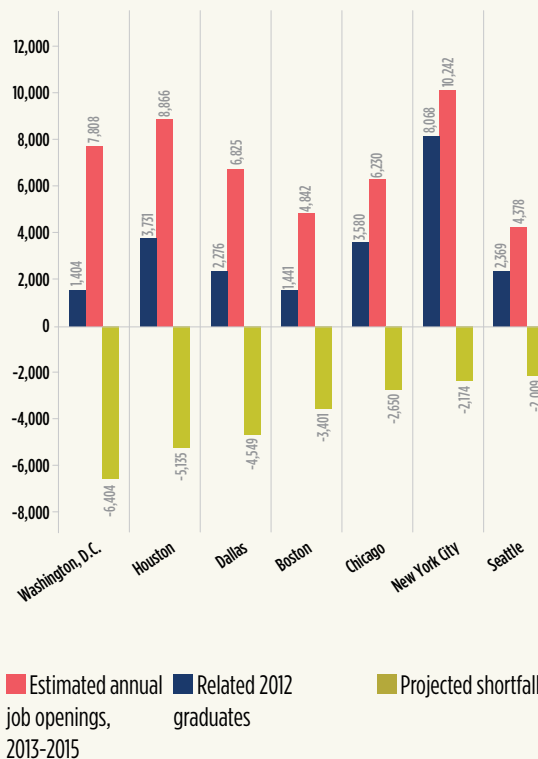
Another possible explanation for the supply/wage disconnect is that firms may be tightly constrained in their ability to raise wages, at least in the short run. Manufacturing is a globally competitive industry, and profit margins may be lower following the Great Recession. Whatever the case, employers genuinely perceive a shortage of skilled workers, and many are seeking alternative ways to develop new talent.

One way businesses are expanding the pool of skilled workers is through strategic partnerships with community colleges aimed at developing curricula specifically tailored to employer needs. For example, Caterpillar has partnered with Waubensee Community College in Aurora, Illinois, to design welding and safety training classes. Waubensee also partners with the Valley Industrial Association (VIA) to market and deliver a supervisory program to VIA member companies. Class topics range from management skills to workplace safety.<sup>2</sup>

A different type of private sector effort is JPMorgan Chase’s “New Skills at Work” program. This program involves a \$250 million investment spread over five years – \$15 million of which is earmarked for the Chicago area – making it the largest private-sector initiative to address worker skills assessment and development. Funds will be directed toward the following goals:

- Build a demand-driven system through cross-sector gatherings to encourage collaboration, share findings, and formulate strategies;

## Metros with biggest shortfall of workers in skilled trades, tech, and business/finance



Source: EMSI 2013.<sup>4</sup> Class of worker.<sup>3</sup>

- Invest in the best training and make targeted investments to strengthen and scale the most effective workforce training programs; [and]
- Rely on data and sponsor a data-driven analysis of skills demand to supply gaps in local markets.<sup>4</sup>

To help implement this program, JPMorgan has enlisted the help of a number of partners, including: the National Academy Foundation; The Aspen Institute’s Forum for Community Solutions; the Institute for Public Policy Research; Jobs for the Future; the National Fund for Workforce Solutions; Participle; Women Like Us; Year Up; and YouthBuild USA.

Following the recommendations of a report from Economic Modeling Specialists Intl. (EMSI), “New Skills at Work” will be focused regionally. According to this report, shortages for specific skills are easier

to assess locally as opposed to nationally as cities vary significantly in terms of their industry mix. For example, San Francisco has a regional cluster of technology companies, so their worker needs lean toward technology/engineering positions. Chicago, on the other hand, may face larger shortages in the manufacturing sector.<sup>5</sup>

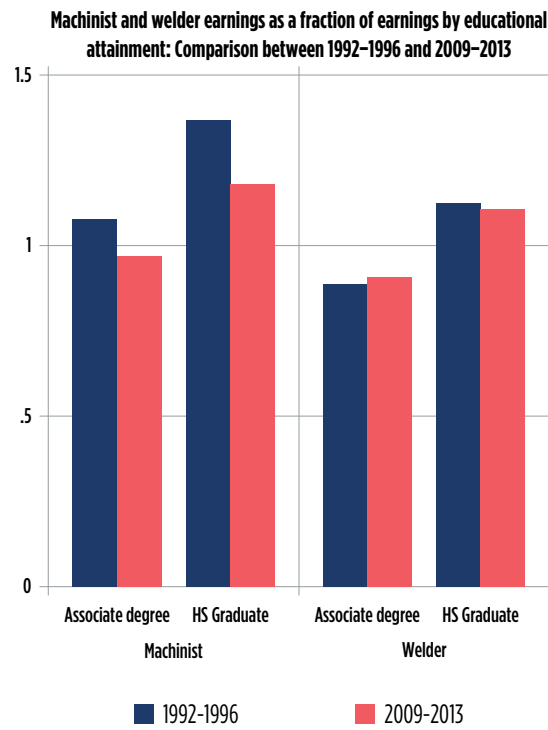
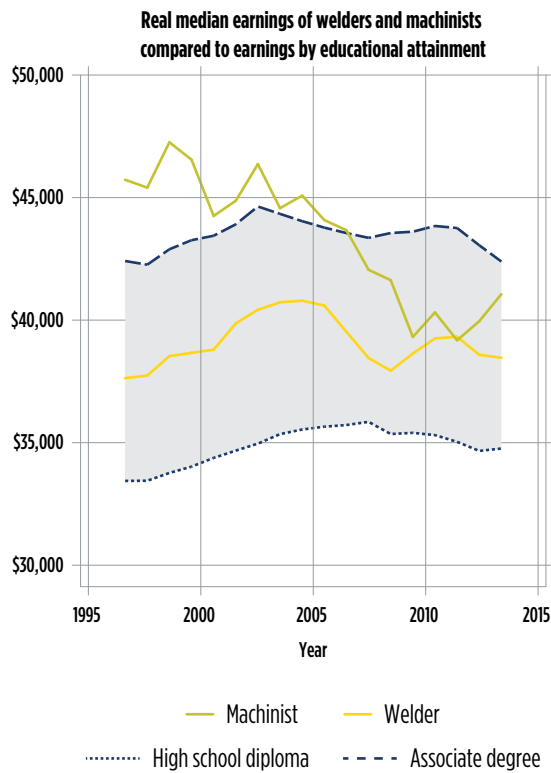
To identify specific areas of focus, the report examined “2012 graduates in regional educational programs” to estimate annual job opening projections from 2013 to 2015. Using this approach, the report projected worker shortfalls exceeding 4,500 in Washington, DC, Houston, and Dallas, and shortfalls exceeding 2,000 in Boston, Chicago, New York City, and Seattle. Still, while many cities may face a shortage, others are facing a potential surplus of workers. For example, both Tulsa, Oklahoma, and Baton Rouge, Louisiana, will have more graduates than job openings in the skilled trades.

The EMSI report ultimately concedes that the term “skills gap” is somewhat subjective, noting that “some refer to the skills gap as a compensation gap, claiming that employers are unwilling to bump up wages to bring in the talent they need. Others call it a training gap, claiming that employers aren’t doing enough on-the-job training, or that educational institutions aren’t in tune with employers’ needs.”<sup>6</sup> Regardless of how they are characterized, however, employers share a set of concerns that run deeply enough to spur them into action.

## Notes

1. Krugman, Paul, 2014, “Jobs and Skills and Zombies,” *The New York Times*, March 30, available at [http://www.nytimes.com/2014/03/31/opinion/krugman-jobs-and-skills-and-zombies.html?\\_r=0](http://www.nytimes.com/2014/03/31/opinion/krugman-jobs-and-skills-and-zombies.html?_r=0).
2. Engel, Emily, 2013, “Community Colleges and Industry: How Partnerships Address the Skills Gap,” *ProfitWise News and Views*, available at [http://www.chicagofed.org/digital\\_assets/publications/profitwise\\_news\\_and\\_views/2013/PNVNov2013\\_FINAL.pdf](http://www.chicagofed.org/digital_assets/publications/profitwise_news_and_views/2013/PNVNov2013_FINAL.pdf).
3. New Skills at Work & JPMorgan Chase & Co., available at <http://www.jpmorganchase.com/corporate/Corporate-Responsibility/new-skills-at-work.htm>.
4. Interestingly, the Boston Consulting Group study (described below) reaches a different conclusion. According to their methodology – which identifies shortages by focusing on changes in occupational wages in relation to inflation – regional shortages for a particular skill set are more likely to crop up when the market for it is relatively small.
5. EMSI, 2013, “Analyzing Local Skills Gaps As Part of JPMorgan Chase’s ‘New Skills at Work’ Initiative,” available at <http://www.economicmodeling.com/wp-content/uploads/EMSI-SkillsGap-Brief.pdf>
6. *Ibid.*

Figures 5a and 5b.<sup>17</sup>



Source: Current Population Survey as obtained through IPUMS.

- The paucity of skilled applicants has been a concern for quite some time, perhaps as early as the 1980s. It reached a tipping point during the Great Recession, however, when a labor surplus – as indicated by high rates of unemployment – failed to ease the shortage.

Interestingly, Tomei notes the difficulties employers face tend not to be discussed alongside matters of compensation. (Instead, these discussions are dominated by other concerns like union membership and industry pay standards.) Presumably, competing more aggressively for local talent through higher pay is not an attractive option for employers who already must compete globally on the price of goods. Given high levels of unemployment, it may also be perceived as an unnecessary option.

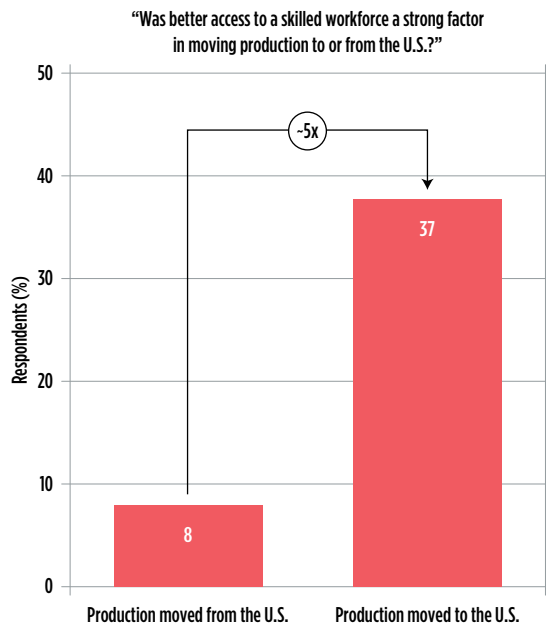
Data support the notion that manufacturers are reluctant to bid up wages as a means to meet demand. According to self-reported weekly earnings of full-time workers in the Current Population Survey (CPS),

for instance, the gap in wages between welders and associate program graduates did not close significantly since the early 1990s (specifically, welders earned 89 percent of what associate graduates earned between 1992 and 1996 versus 91 percent between 2009 and 2013; see figure 5b). While we may not necessarily expect the gap to close completely, we might at least expect a greater degree of closure as employers require additional post-secondary training beyond high school. However, as figure 5a shows, wages have remained steady in relation to the channel bounded by the median wages of high school graduates at the low end, and associate program graduates at the high end.

Over this same period, the relationship between the wages of machinists and associate program graduates was actually reversed: whereas machinists typically earned 1.08 times the annual wages of associate program graduates between 1992 and 1996, that ratio dropped down below parity to .97 between 2009 and



**Figure 6. Skilled labor is more of a draw to the U.S. than perceived shortages are a deterrent<sup>18</sup>**



Source: BCG manufacturing survey, February 2012.

2013. According to the Bureau of Labor Statistics (BLS) bulletins and CPS data, this may partly reflect a skewing of the machinist age distribution toward the younger end in conjunction with mass layoffs that disproportionately affected mid-career workers during the 2001 recession.<sup>19</sup>

Drawing upon data from the BLS and U.S. Bureau of Economic Analysis, a Boston Consulting Group (BCG) report found similar wage inertia. According to their analysis, nation-wide wages among highly skilled manufacturing occupations grew on a compound basis by about 2.5 percent between 2005 and 2010 – a rate similar to that of inflation. Broadly speaking, this rate falls short their definition of a “significant skills gap,” which “can be said to exist when wage growth has outpaced inflation by at least 3 percentage points annually for five years.”<sup>20</sup>

At the MSA level, the BCG’s findings were more nuanced – severe shortages according to their definition were in fact apparent in 47 of 389 local submarkets. The BCG contends, however, these limited shortages are local in nature and not indicative

of a broader, structural problem: specifically, MSAs in which a shortage was observed may have had difficulty accommodating demand increases given the relatively small size of their manufacturing bases. On the other hand, deeper markets like Detroit, Chicago, Houston, Los Angeles, and Minneapolis are such draws internationally that gaining access to skilled labor is five times more likely to prompt the onshoring of production to the U.S. than its offshoring (see figure 6).<sup>21</sup>

How can such lack of observable wage movement be reconciled with talent shortages which – as the BCG study notes – factor into the perceptions of manufacturers both in the U.S. and abroad?<sup>22</sup> Resolving this incongruence may hold the key to understanding employment polarization from the manufacturer point-of-view. Peter Cappelli, Research Associate at the National Bureau of Economic Research, for instance, suggests that employers have shifted from a traditional model of labor, where companies respond flexibly to shifts in the labor market, to a model that more closely regards employees as inputs into a supply chain. Under this second model, employers produce a specific amount of goods at a set price, and a worker either has the required skills or does not.<sup>23</sup> From this perspective, high school graduates’ inability to keep pace with technology-induced upskilling bears resemblance to a supplier failing to accommodate changes in part specifications.

Though largely critical of this perspective, Cappelli provides some reasons why it may be reasonable. For one, workers today switch employers far more often than they did in the past. This means that employers are hiring much more often, not just for entry-level jobs, but also for positions across the skill and experience spectrum. While it may be simple to train a young high school graduate for a new position, finding an experienced worker to fill a more senior role could require a more intense search. Filling vacancies across all levels in the organization aligns more closely with the idea of filling a piece in a supply chain. Moreover, even training young workers is risky when the workforce increasingly changes jobs. Employers may be reasonably concerned that investments in training will be lost if the employee leaves soon afterwards for better pay with another firm.<sup>24</sup>

## Conclusion

The secular increase in both relative employment and wages at the higher end of the skill spectrum likely points to a widespread increase in demand for skill without a commensurate increase in supply. For a manufacturer, characterizing this trend as an interruption in a defined supply chain is understandable. What this perspective misses, however, is that expectations surrounding who the appropriate supplier is – and how much they should charge – are anchored in a time when barriers to entry for high school graduates were much lower. It may very well be that large numbers of male high school graduates are disengaging from the labor force despite employment opportunities in manufacturing. To describe this as a "skills gap," however, is already well on its way toward arguing education is flawed and requires remediation. Understanding this disconnect as an outcome of technology-driven upskilling, on the other hand, disentangles prescription from description, and allows the policymaker to confront the true breadth of complex issues that require sorting.

Key among these issues is the potential blurring between education and job training. To take two hypothetical examples, an informed taxpayer may have qualms about a public-private partnership that trains an individual to operate a machine used by manufacturer X but not manufacturer Y. The same taxpayer may be only slightly more comfortable with a partnership that provides skills that can be applied broadly in manufacturing, but not some other industry. In these cases, the public share of partnership dollars bears a close resemblance to an employer or industry subsidy.

These examples are of course extreme, and are offered merely for the sake of illustration. As Alan Greenspan noted at the 2000 National Skills Summit, updating public curricula in conjunction with the evolution of employer needs may be warranted, and there are precedents for it. "Early last century," he noted, "advances in technology began to require workers with a higher level of cognitive skills, for instance the ability to read manuals, to interpret blueprints, or understand formulae. Our education system responded: In the 1920s and 1930s, high school enrollment in this country

expanded rapidly...to meet the needs of an advancing manufacturing sector."<sup>25</sup>

Even if one accepts a public role in the administration of employment-oriented education programs, deciding which ones should be funded and to what extent is still complex. That said, the broadness with which skills may be applied might provide a useful litmus test: programs that offer broadly applicable skills may be classified as "investments in the workforce", while programs that offer narrower skills appear more like subsidies. Interestingly, when participants of the CDPS survey were asked "to what extent are companies in your area willing to train workers?" several respondents expressed an openness towards providing specific training for candidates who meet basic general requirements.<sup>26</sup> At first blush, such feedback suggests room may in fact exist for solutions that would pass this litmus test. Regardless of who is responsible for upgrading the qualifications of the traditionally middle-skilled, it's important to emphasize that any success in this area would constitute a striking achievement in workforce development.

# Is a college education worth the cost? A risk/reward perspective

---

If the sheer number of zeroes above the dotted line somehow weren't enough to make a 17-year-old cringe at the thought of signing for a college student loan, reading just about any magazine would. A recent *TIME* article with the headline, "Student loans are ruining your life. Now they're ruining the economy too," tells of a dental student who lives with his parents and is considering joining the military to repay his \$400,000 debt.<sup>27</sup> Another account in *The New York Times* profiles a student who borrowed \$97,000 and now struggles to pay her bills working for a photographer.<sup>28</sup> To a young person faced with an important life decision, these stories inevitably raise the question: Is college worth it?

Broadly speaking, the answer is 'yes'. In his book *The New Geography of Jobs*, Berkeley economist Enrico Moretti writes, "Not only is college a good investment, it is one of the best investments around."<sup>29</sup> Summarizing research from the Brookings Institution, he considers a hypothetical 17-year-old with \$102,000 and asks whether she would do better going to college or making a financial investment. He reports that, "Investment in a college degree delivers an inflation-adjusted annual return of more than 15 percent, significantly larger than the historical return on stocks (7 percent) and bonds, gold, and real estate (all below 3 percent)."

Still, while college makes sense in the aggregate, it does not guarantee a better job or higher lifetime earnings. The value of college degrees (based on course of study, ranking/perceptions of the institution conferring the degree, and many other

factors) differs significantly in the marketplace. Returns can be negative, and the variance among outcomes is significant. Furthermore, there is risk that the degree will not be attained at all due to unforeseen events. The high cost of higher education represents sunk cost, and students who fail to finish but incur debt are particularly worse off.

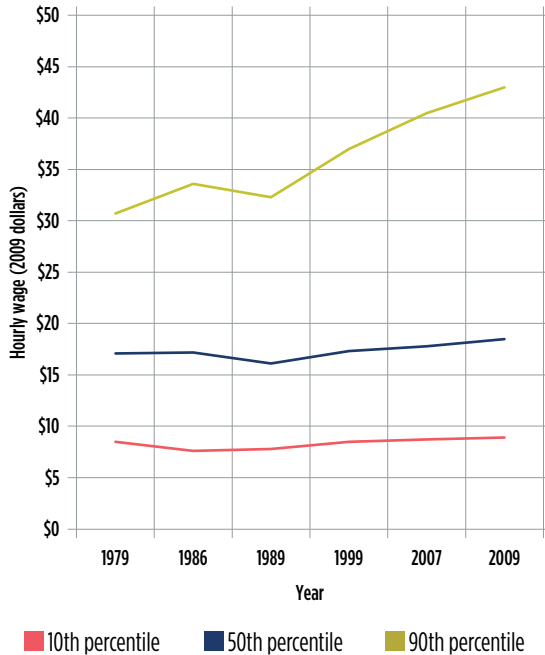
To understand the value of a college education more fully, we examine the college premium along with other data that shows why higher education remains an excellent investment for most people. Like all investments, however, with reward comes a degree of risk deriving from three major sources: 1) choices made along the path toward attaining a degree; 2) unemployment, and; 3) non-attainment/delayed attainment. We conclude with a brief comparison of graduation rates across states in the Seventh District and consider the relative success of Iowa's institutions.

## Reward

### The college premium

Income inequality is in the political spotlight right now, and for good reason. The U.S. has experienced a pattern of increasing income inequality over the last several decades. The Congressional Budget Office reports that the median wage rate for men in the 10th percentile increased by 8 percent between 1979 and 2009, while the median wage rate for those in the 90th percentile increased by 40 percent (see figure 7).<sup>30</sup> Increases in the median wage rate for the often

**Figure 7. Hourly wages at selected percentiles for workers ages 16 to 64**



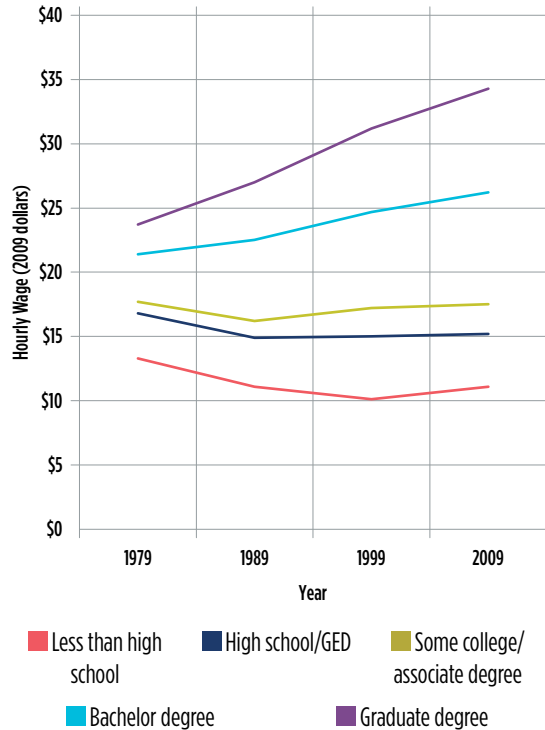
Source: Congressional Budget Office. "Changes in the Distribution of Workers' Hourly Wages Between 1979 and 2009." CBO study, Washington, DC, 2011.

mentioned 99th percentile (i.e., "the 1 percent") were even higher.

Evidence suggests that the rising college premium – i.e., the disproportionate increase in the wages of workers with a college degree compared with those with a high school degree or less – is largely responsible for the often noted gap between "haves" and "have-nots." Splitting the same wage data by educational attainment, it becomes clear that wages increased for those with a bachelor degree or higher and fell for those with only a high school degree or less (see figure 8). In his analysis, Moretti reports the same basic results even when dropping the CEOs and financiers from the data.

Economist David Autor of MIT documents the same trends in his report on job polarization for the Center for American Progress.<sup>31</sup> He presents the following figure (figure 9), showing differences in the weekly wage ratios between college educated workers and those with only a high school degree. His findings

**Figure 8. Median hourly wage by educational attainment, men ages 16-64**

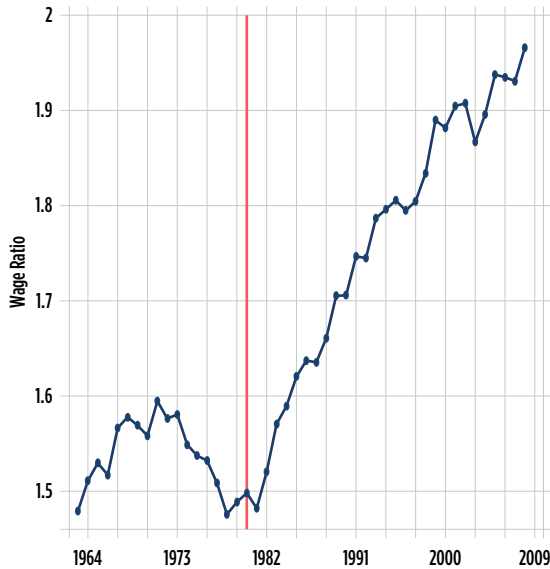


Source: Congressional Budget Office. "Changes in the Distribution of Workers' Hourly Wages Between 1979 and 2009." CBO study, Washington, DC, 2011.

show the college wage premium has been increasing since about 1980.

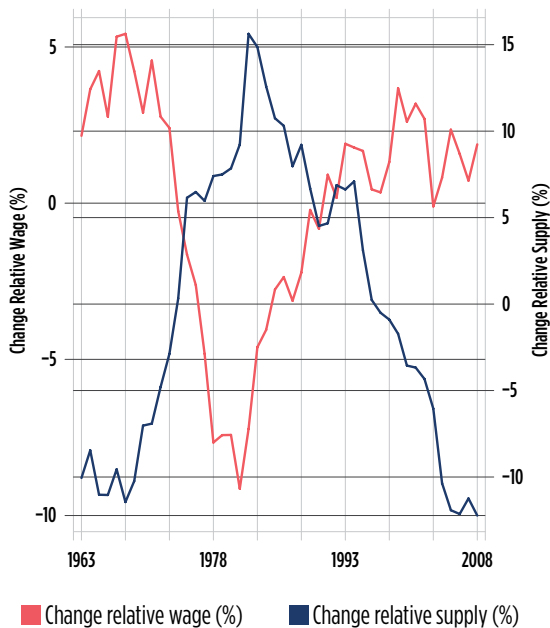
The sharp increase in the college premium stems from structural changes in the nation's labor market. As reported in the previous article, globalization and technological changes have caused job opportunities in the U.S. to polarize. Middle-skill jobs for those with a high school education have been disappearing, while the demand for skilled labor continues to increase. In their book, *The Race between Education and Technology*, economists Larry Katz and Claudia Goldin document an increasing demand for skilled labor since the beginning of the First World War.<sup>32</sup> So what happened in 1980? Very simply, the relative supply of college graduates began to trail the rising demand for a highly educated workforce. As college graduates became increasingly scarce relative to demand, their wages went up.

**Figure 9. College/high school weekly wage ratio, 1963-2008**



Source: Autor, David. *The Polarization of Job Opportunities: Implications for Employment and Earnings*. Policy Report, Washington, DC: Center for American Progress and The Hamilton Project, 2010.

**Figure 10. Detrended changes in college degree vs. high school diploma relative supply and relative wages**



Source: Autor, David. "The Polarization of Job Opportunities: Implications for Employment and Earnings." Policy Report, Washington, DC: Center for American Progress and The Hamilton Project, 2010.

Autor offers a concise picture of this supply-and-demand relationship, as shown in figure 10. Beginning around 1980, it's clear that the relative wages increase almost perfectly with the decline in the relative supply. The finding of this relatively straightforward analysis, Autor confirms, is supported by many more rigorous studies that arrived at the same conclusion.

The decline in relative supply has come disproportionately from men. Between 1940 and 1980, the rate of baccalaureate attainment among men ages 25-34 increased three-fold, reaching 26 percent.<sup>33, 34</sup> This rate fell to 23 percent in 1990, and grew slowly to 26 percent in 2000 and 27 percent in 2010.<sup>35</sup> Baccalaureate attainment among young women grew at approximately the same rate as men between 1940 and 1980, but then continued to grow from 20 percent in 1980 to 35 percent in 2010.<sup>36, 37</sup> In fact, the slow growth in attainment among men appears to be driving the plateau in college completion rates that is boosting the college wage premium. As Autor states, "...a major proximate cause for why the wage gap between college-educated workers and high school-educated workers has expanded sharply over the past three decades is that male four-year college attainment stagnated throughout the interval."<sup>38, 39</sup>

In the current labor market, a college degree is more important for success than ever. The earnings premium for college graduates is rising, while middle-skill jobs for high school graduates are disappearing. Anecdotal accounts about high student debt may give pause to many students considering the costs and benefits of attending college, but prospective students would be well advised to consider the cost of not attending college in their decision making.

### Putting cost into perspective

Despite overwhelming evidence on the benefits of college, rising tuition and unmanageable debt have emerged as prominent themes in accounts of struggling graduates. Indeed, average real tuition and fees at private nonprofit institutions have risen by 25 percent over the past 10 years, outpacing growth in median family income.<sup>40</sup> Average in-state tuition and fees at public four-year institutions has risen even faster, at 51 percent. Following a major recession, and given the costs of college are high and paid up front, the increased cost creates even greater hardship for many.

However, a few points are worth noting. First, a study by the College Board reports that even as published tuition has increased, net tuition at private nonprofit institutions (that is, published tuition minus grant aid and tax benefits) has actually fallen 8 percent over the same period. This is a better measure of financial burden since it indicates what most people actually pay. Second, net tuition at public institutions – where state subsidy offsets tuition costs – is only 25 percent that of private nonprofit institutions. Figures on aggregate student debt have also been widely publicized. The Student Loan Debt Clock at FinAid.org provides a striking representation of growth in total debt outstanding, currently estimated at over \$1 trillion and rising.<sup>41</sup> Yet even as total debt continues to grow, research economists Avery and Turner report that the average amount a student borrows has remained fairly constant in real terms. Growth in total debt can largely be traced to more students entering college and a higher fraction choosing to borrow.

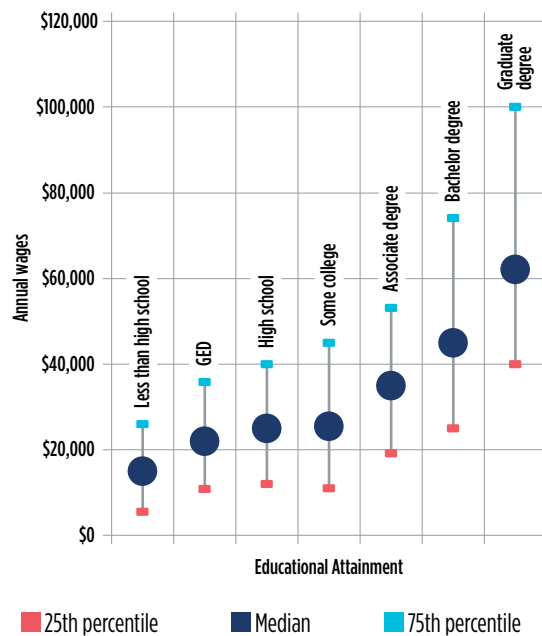
Ultimately, the decision to pursue a degree and incur significant costs and debt should be understood in terms of expected return. Avery and Turner demonstrate that the net present value of average lifetime earnings for college graduates more than justifies the cost. In their analysis, the average college graduate would have earned approximately \$1.2 million net of tuition by age 64, compared to \$780,000 for the average high school graduate.<sup>42</sup>

Given the high returns to college, it's not entirely clear whether students are borrowing too much or not enough. Avery and Turner report that many students drop out due to high-interest credit card debt, or work part-time jobs that cause grades to suffer. Borrowing more in the form of low-interest student loans would seemingly be a better option for these students.

## Risk

Given the (macro-level) evidence that a college degree is a value-added investment net of associated costs, why is the media narrative so negative? Journalists have tended to focus on downside risk, which makes for compelling reading. While the risks may be covered disproportionately in the popular press, they are real.

**Figure 11. 2010 wage distribution by educational attainment, workers ages 16-64**



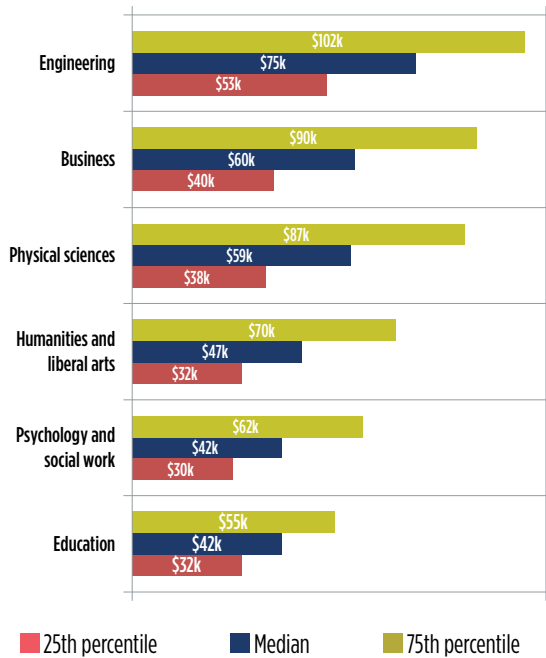
Source: ACS 2010 as obtained through IPUMS USA. Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota, 2010.

## The educational path

While average returns are high, some students have low or even negative returns to college. There is no common path through higher education, and outcomes vary greatly by degree level, institution, and choice of major. We examine the distributions for each of these factors in sequence.

First, students pursuing postsecondary education choose to pursue either an associate degree or a bachelor degree. Previous comparisons point primarily to advantages of a four-year college degree over a high school diploma, but options at the two-year level have greatly expanded and are generally much more affordable. While earnings for workers with a four-year degree are higher on average, they also have a much wider distribution than two-year degrees. The 75th percentile of income for workers with a bachelor degree earns \$21,000 more than the 75th percentile of those with an associate degree.

**Figure 12. Wage distribution by major (2009)**



**Note:** Sample limited to full-time, full-year workers with a Bachelor degree (but no higher).

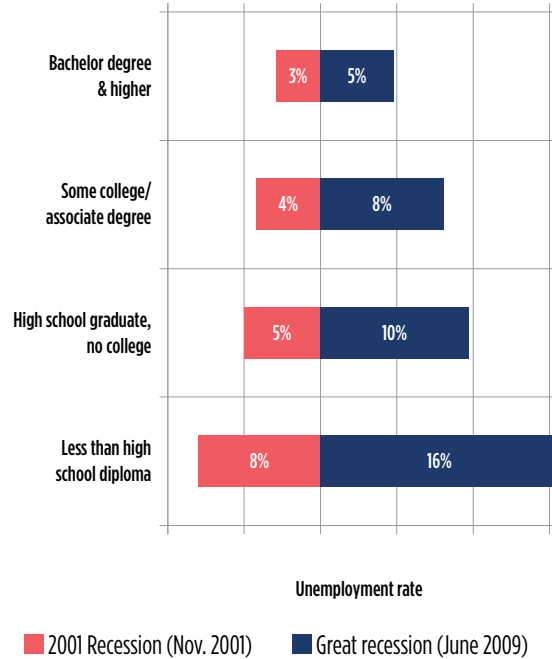
**Source:** Carnevale, Anthony, Jeff Strohl, and Michelle Melton, 2011. "What's It Worth? The Economic Value of College Majors." Georgetown University Center on Education and the Workforce. May 24, 2011. <http://cew.georgetown.edu/whatsitworth> (accessed May 19, 2014).

Yet this difference in income drops to \$10,000 at the median and roughly \$6,000 at the 25th percentile. Already it's clear that some workers with bachelor degrees will earn less than those with associate degrees.

It's worth noting that wages for workers with associate degrees are often jointly reported with wages for those with only some college, but there is a meaningful distinction in the data. Those with some college credit but no degree look similar to those with only a high school education, while those with an associate degree earn significantly more. It may be that some portion of employers value degrees more than simply years of schooling.<sup>43</sup>

Second, students choose from a wide range of institutions for competitive admission, all of which vary in resources, tuition, scale, fields of study, and instructional mode. Of these factors, resources seem

**Figure 13. Unemployment rate at recession end by educational attainment (age 25+)**

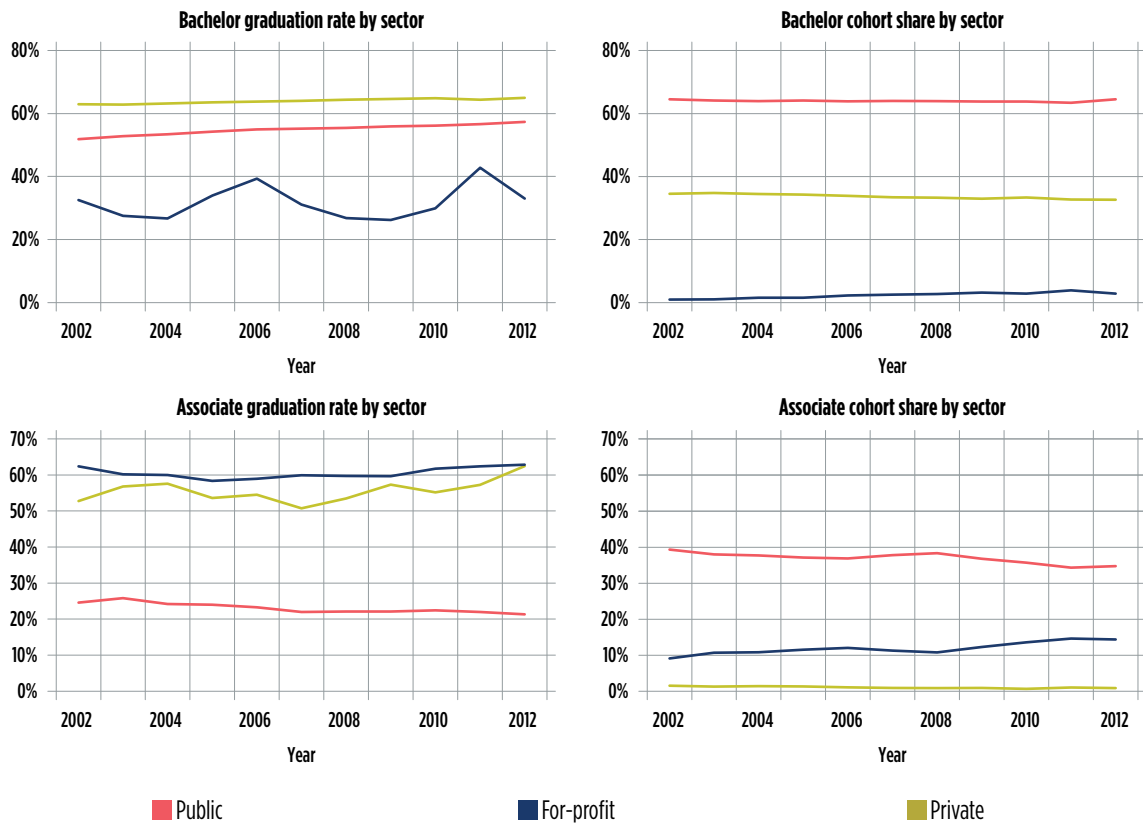


**Source:** Current Population Survey and Haver Analytics.

to be particularly important. Economists Bound and Turner report substantially greater earnings for students who attend schools with greater resources per student. Even more, they highlight a number of studies which document gains even when controlling for family background and scholastic achievement. Summarizing the work of Hoekstra, they state, "... for those at the margin, attending the flagship school increases earnings by 20 percent." This link between institutional resources and student outcomes is particularly concerning in light of substantial "undermatching," where highly qualified students (mostly from households in the bottom quartile of family income) fail to enroll in very selective colleges.

Lastly, there is broad dispersion of earnings across groups of college majors. Students in a technical field tend to earn more than humanities or education majors. Researchers at Georgetown University analyzed earnings data from the American Community Survey for full-time, full-year workers aged 18-64 with a bachelor degree. They report that engineering majors have the highest annual median

Figure 14.



Source: U.S. Department of Education. Institute of Education Science, National Center for Education Statistics.

earnings at \$75,000, while education, psychology, and social work majors have the lowest at \$42,000.<sup>44</sup>

Significant dispersion of earnings exists even within groups. Engineering majors report the highest annual earnings, but also one of the widest ranges. Median earnings for petroleum engineers top the list at \$120,000, more than double the median earnings of biological engineers at \$55,000. At the other side of the spectrum, earnings of education majors vary much less in dollar amount. Early childhood education majors report the lowest median at \$36,000, while secondary education majors report one of the highest among educators at \$46,000.

### Unemployment

In addition to wage differences relating to specific decision points along the educational path, macroeconomic unemployment risk also contributes

to the volatility of returns on investment in a college education. In relative terms, college graduates are shielded from this risk compared to non-graduates. While the most recent recession was severe for workers in general, those with a college education were half as likely to be unemployed than those with only a high school diploma (5 percent vs. 10 percent; see figure 13). Furthermore, research from economists Nir Jaimovich and Henry Siu suggests that many of the middle-skill jobs lost in the recession will likely be eliminated through efficiencies or replaced by automation.<sup>45</sup>

From a different perspective, the stakes for college graduates in terms of return-on-investment can be quite high. Financial arguments in favor of college often measure the present value of income earned over a career. These estimates of lifetime earnings can be quite sensitive to when a career starts in earnest.



## Integrated Postsecondary Education Data System

The National Center for Education Statistics provides data on graduation rates by cohort for postsecondary institutions in the United States through the Integrated Postsecondary Education Data System (IPEDS). All institutions that apply for Federal financial assistance under Title IV of the Higher Education Act of 1965 are required to complete the surveys. Graduation rates represent the fraction of full-time students who completed their program within 150 percent of the normal program length (e.g., six years for a bachelor degree or three years for an associate). IPEDS classifies these cohorts according to three levels: bachelor degrees, other undergraduate degrees or certificates at four-year institutions, and degrees or certificates at two-year institutions. Data are released according to the year that a cohort finishes (e.g., 2012 data represent graduation rates of four-year students who began in 2006 and two-year students who began in 2009).

These statistics have been criticized in recent years, since they only track the graduation rate of full-time, first-time students in an institution, and exclude those who transfer or take longer to complete their degree. A more constructive assessment is that the data measure how efficiently schools bring students through their programs. Viewing the data along these lines highlights an important fact: extended enrollments are common at the bachelor level, and are the norm at the associate level.

These nuances in the data impact our use of the term "graduation rate." Specifically, "graduation rate" in the context of bachelor degrees refers to the six-year graduation rate; for associate degrees, it refers to the three-year graduation rate. Importantly, the remaining percentage of students includes those who transferred or took substantially longer to attain a degree. In terms of the discussion on risk, students in this latter group have likely experienced some undesirable outcome. It's not always clear, however, whether that outcome is non-attainment or just delayed attainment.

Viewed through this lens, the two percentage point difference between the 2001 and 2007-09 recessions is small but consequential.

The interaction of college attainment with unemployment is ultimately two-fold: while a degree helps to insure against the incidence of unemployment, it also magnifies the (financial) consequences of unemployment should it occur.

### Non-completion risk

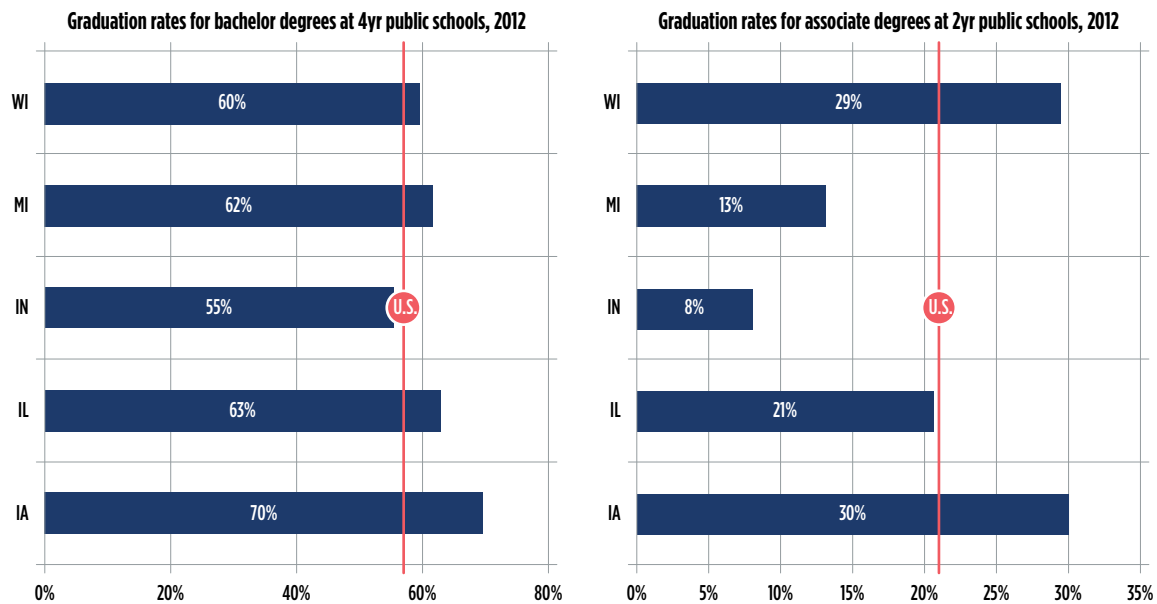
Financial valuations of college degrees often invoke comparisons with stocks and bonds. While earnings on these investments begin to accumulate upon purchase, however, educational investments start accumulating value only after a degree has been attained. Accordingly, return-on-investment may suffer if attainment is delayed or fails to take place altogether.

Unfortunately, the Integrated Postsecondary Education Data System (IPEDS) data suggest this risk is significant (see inset). Though the national

graduation rate for bachelor degrees has been climbing over the past decade, it is still surprisingly low – just 59 percent in 2012 (see figure 14 for breakout by sector). According to Avery and Turner, a little over half of all students who anticipate completing a bachelor degree fail to do so within six years and accumulate an average of \$7,413 in debt.<sup>46</sup> Overall graduation rates from two-year colleges are even lower at only 34 percent.

This gap in completion rates by degree level corresponds largely to differences in the performance of public institutions. As figure 14 shows, the majority of students at both levels are enrolled in public institutions. However, while public institution completion rates are comparable to those of private institutions at the bachelor level, completion rates at the associate level lag significantly behind those of private and for-profit institutions. At this latter level, for-profit institutions lead with a 63 percent graduation rate, while public community colleges struggle around 20 percent.

Figure 15.



Source: U.S. Department of Education. Institute of Education Science, National Center for Education Statistics.

Given the extent to which higher completion rates at the bachelor level are linked to the strength of public institutions, the growth in for-profit institution market share over the past decade is concerning. In addition to lower completion rates, graduates of for-profit schools report higher debt, greater unemployment, and lower earnings than similar peers in public or nonprofit schools.<sup>47</sup> While public schools still enroll the majority of the cohort, for-profit schools have nearly doubled their share of the cohort since 2002.

Low graduation rates at community colleges are especially troubling given their important role in providing a bridge to the middle class. Indeed, these figures have prompted the attention of researchers, philanthropists, and politicians alike. A study by Jenkins and Cho at Columbia University's Community College Research Center shows that offering guided pathways to help students navigate through programs may be a key to improving success rates. They document improved outcomes for students entering a program in their first year of study, yet many students enroll without choosing a program until their second year or later.<sup>48</sup> Building on this research, the Bill and Melinda Gates Foundation has

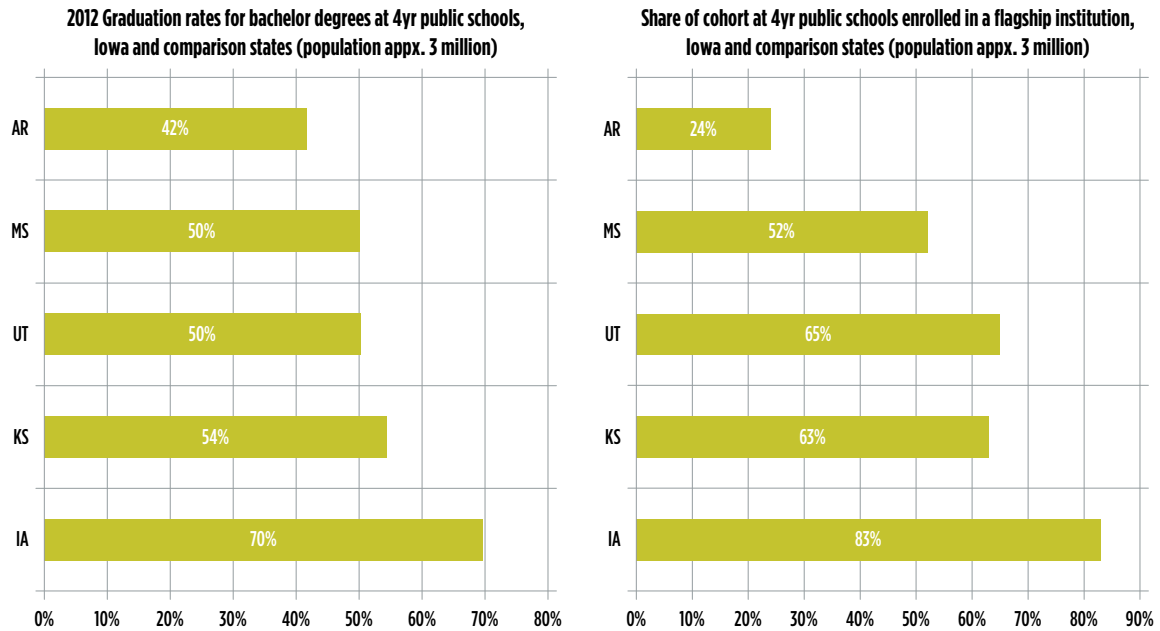
dedicated \$35 million to the Completion by Design Initiative, which is currently piloting programs at community colleges in five states to streamline the student experience.<sup>49</sup>

### A closer look at graduation rates in the Seventh District

As leaders across states in the Seventh District seek to increase employment, it's worth broadly examining how graduation rates compare to the nation overall, and which states are leading the district. Toward that end, we restrict the comparison to public institutions since they account for the majority of students and are most connected to state-level governance. The IPEDS data classifies cohort outcomes into four categories. After 150 percent of normal program time, students have either graduated, transferred, remained enrolled, or dropped out. Figure 15 shows the graduation rate by state for bachelor programs, with the U.S. included as a benchmark. Here we see that Iowa leads the pack with a graduation rate of 70 percent, or 13 percentage points greater than the national rate. The other four states are clustered more closely around the national rate.

At the community (i.e., two-year) college level, Iowa leads again in the graduation rate, followed closely

Figure 16.



Source: U.S. Department of Education. Institute of Education Science, National Center for Education Statistics.

by Wisconsin. Indiana and Michigan are far below the national level. Michigan's poor graduation rate is mitigated by a high transfer rate, but the same is not true for Indiana.

### The Iowa advantage

Policy wise, is there anything we can learn from Iowa's relative success at the four-year level? After all, Iowa's population is only a quarter of Illinois's. Comparing states of similar population, Illinois's rate is on par with Pennsylvania (63 percent) and significantly better than Ohio (55 percent). Yet even among its peer states of approximately 3 million people, Iowa stands out by an impressive margin. Kansas, Utah, Mississippi, and Arkansas each have rates between 42 percent and 54 percent. Iowa's graduation rate of 70 percent ranks as fourth highest in the U.S.

Understanding exactly how students are dispersed within the state's respective public sector may hold the key to unlocking Iowa's success. Examining the data from this angle reveals that Iowa's bachelor degree students are concentrated in only three schools, whereas bachelor degree students in comparison states are spread across six to ten schools (or 11-15 schools in the Seventh District). Importantly, two

of these three schools – the University of Iowa (UI) and Iowa State University (ISU) – comprise Iowa's flagship schools. Consequently, the share of students enrolled in a flagship school (83 percent) exceeds that of the next closest comparison state by 18 percentage points (see figure 16).

Robert Berdahl, former president of the Association of American Universities (AAU), noted Iowa's flagship schools in a speech given while chancellor of UC Berkeley in 1998. After detailing how many states moved to create university systems in the 1960s without "any clearly defined educational purpose," he cites Iowa as an exception. "Iowa refused to add universities during the expansion of the 1960s, choosing instead to invest in and expand its two flagship campuses, Iowa State and the University of Iowa, as well as its one teachers' college, which became the University of Northern Iowa. No public university was built in Des Moines, the largest city in the state. As a result, with a population base roughly the same as Oregon, or slightly less, it has two excellent and thriving AAU universities, while Oregon has eight underfunded, struggling institutions."<sup>50</sup>

**Table 1. Per-student funding by state, 2-year public schools**

|             | On-time completion rate | State   | Local   | Federal | Total   |
|-------------|-------------------------|---------|---------|---------|---------|
| <b>IA</b>   | 30%                     | \$1,506 | \$828   | \$1,592 | \$3,926 |
| <b>IL</b>   | 21%                     | \$967   | \$1,326 | \$883   | \$3,176 |
| <b>IN</b>   | 8%                      | \$1,568 | \$41    | \$1,446 | \$3,056 |
| <b>MI</b>   | 13%                     | \$844   | \$1,471 | \$1,521 | \$3,836 |
| <b>WI</b>   | 29%                     | \$875   | \$4,047 | \$1,438 | \$6,359 |
| <b>U.S.</b> | 21%                     | \$1,450 | \$930   | \$1,316 | \$3,696 |

Source: U.S. Department of Education. Institute of Education Science, National Center for Education Statistics.

Concentrating students in fewer schools may work along two dimensions to improve graduation rates. First, the schools appear to be more selective, since a smaller fraction of the cohort is enrolled in a bachelor program. Second, students who are on the margin may achieve higher graduation rates than they otherwise would at a smaller institution with fewer resources. A more detailed analysis is required to determine exactly which forces are at play in Iowa.

### The Indiana challenge

In contrast to Iowa’s successful four-year system, Indiana’s unique consolidated system of community colleges faces a number of serious challenges. Ivy Tech Community College of Indiana – the administrator of this system – has 31 degree granting locations but struggles with a graduation rate of 8 percent. Its transfer rate is also among the lowest at 16 percent, but its dropout rate, while higher than all but Michigan, is reasonably close to other states in the district. Students in the Ivy Tech system remain enrolled longer than their peers in other states. After three years, 62 percent of the cohort was still enrolled in 2012, more than 20 percentage points higher than the statewide rate for public two-year schools in neighboring Illinois.

Just as access to flagship-caliber resources helps explain Iowa’s success in the four-year arena, limited access to funds may help account for Indiana’s struggles at the two-year level. Though Ivy Tech receives considerable funds from the state, the school is comparatively under-funded from local sources, at

only \$41 per student. Iowa and Wisconsin, on the other hand, lead the district in graduation rates from community colleges and receive the greatest amount of grants and appropriations per enrolled student. In an effort to close this gap, Ivy Tech is requesting an additional \$83 million in state funding to hire more academic counselors, full-time faculty, and IT equipment.

A deeper dive into the data, however, suggests that state leaders are correct in their wariness that the current system will be able to translate dollars into higher completion rates.<sup>51</sup> After all, Michigan spends nearly as much per student as Iowa but performs only slightly better than Indiana. Likewise, Wisconsin’s per student expenditures are double that of Illinois’s, yet their combined graduation and transfer rates (45 percent and 46 percent, respectively) are virtually the same. Therefore, in an effort to increase the effectiveness with which any additional funds are spent, Ivy Tech is also focusing on offering streamlined programs with less flexibility and more guidance. One such offering, the Associate Accelerated Program (ASAP), allows students to earn an associate degree in one year by attending seven hours a day and studying with the same group of peers and teachers.<sup>52</sup> Much like other schools around the nation, Ivy Tech hopes this highly structured approach will reduce attrition and boost graduate rates.

### Conclusion

The combination of sharp wage growth among workers with a post-secondary degree and stagnant wage growth among the less educated makes a compelling argument in favor of investing in college, even after cost is taken into account. Clearly, however, a number of risk factors can compromise the value of such an investment both before and after a degree has been attained. Descriptive evidence in the form of Iowa’s relative success in the four-year arena suggests outcomes may be improved through policies that steer qualified students seeking bachelor degrees toward well-funded public institutions. At the two-year level, the link between resources and graduation rates is less clear. Educators at community colleges are placing greater emphasis on simplifying aid and providing guidance to students with the goal to improve graduation rates and ultimately guide students toward fruitful paths.

## Skills for a “stronger middle class”

In today’s environment, community colleges play a vital role in helping middle-class Americans gain skills valued and in demand among employers. The Obama administration has made community college workforce programs a policy priority. Earlier this year, President Obama launched two competitive grant initiatives aimed at scaling up successful community college workforce programs: “American Jobs Training Investments” and “American Apprenticeships Grants.”

The American Jobs Training Investments Program (AJTI) encourages community colleges to “figure out what skills local employers are looking for, and then partner with them to help design the curriculums and prepare the students for those jobs.”<sup>1</sup> Community colleges that create these opportunities will be rewarded with grants from a \$500 million fund set aside by the Trade Adjustment Assistance and Community College and Career Training Program (TAA-CCCT). During the last three years, funds from the TAA-CCCT have helped community colleges coach unemployed and underemployed workers in their communities. In 2014, the AJTI is directing funding toward three principal areas to get more people back to work in living wage jobs:

1. Scale in-demand job training across the country through national industry partnerships.
2. Advance education and training to ensure a seamless progression from one stepping stone to another.
3. Improve statewide employment and education data integration and use.<sup>2</sup>

Community colleges will also benefit from \$100 million in grants from the American Apprenticeships Grants Program made possible through H-1B funds. The program funds projects that provide training to workers for skills essential in high-growth industries. Data has shown that “87 percent of apprentices are employed after completing their programs and the average starting wage for apprenticeship graduates is over \$50,000.”<sup>3</sup> The grants competition will focus on launching models in high-growth fields, aligning future opportunities, and scaling models that work.<sup>4</sup> This initiative should help equip the next generation with the skills to succeed.

## Notes

1. The White House Office of the Press Secretary, 2014, “Remarks by the President and the Vice President on Skills Training,” press release, Community College of Allegheny County, Oakdale, Pennsylvania, April 16, available at <http://www.whitehouse.gov/the-press-office/2014/04/16/remarks-president-and-vice-president-skills-training>.
2. The White House Office of the Press Secretary, 2014, “FACT SHEET – American Job Training Investments: Skills and Jobs to Build a Stronger Middle Class,” press release, April 16, available at: <http://www.whitehouse.gov/the-press-office/2014/04/16/fact-sheet-american-job-training-investments-skills-and-jobs-build-stronger-middle-class>.
3. Ibid.
4. Ibid.

# The Cara Program: Workforce development one life at a time

---

How does one go from homelessness and poverty to holding a steady job? This is the sort of question Tom Owens was asking when he started Cara (which means “friend” in Gaelic) in 1991. Owens recognized that – while many excellent resources exist to help people develop hard technical skills – some individuals face barriers to employment that go beyond the scope of traditional workforce training, such as underdeveloped soft skills, criminal records, limited/no work experience, and lack of professional role models. However, he supposed that if a person had housing, transportation, childcare, appropriate work attire, and a platform of soft and hard skills on which to build, then they would stand a solid chance of succeeding in the workforce. Furthermore – if such a program were to exist – the benefits would likely extend beyond its participants and into the larger community.

Twenty-three years later, The Cara Program has evolved into a thriving job training institution for people impacted by a variety of life challenges. Cara organizes its activities according to the philosophy that life challenges are best met with life skills, and has identified five transformation concepts aimed at fostering such skills:

- Change your behavior,
- Look with new eyes,
- Know the deepest truth of who you are,
- Think outside the box, and
- Don't relax.<sup>53</sup>

Within a highly structured and supportive environment grounded in these principles, Cara's “students” work at Cara four days a week to simulate a traditional job. The day is spent on activities that promote team building, conflict management, resume development, financial literacy, budgeting, and professional growth; class topics range from banking to a variety of “soft”<sup>54</sup> and life skills. The latter class focuses on interpersonal and less tangible skills – often ignored in traditional worker training programs – needed to succeed in the workforce.

The program emphasizes developing and testing skills under realistic conditions. In fact, students have a “termination” class where students role play as the CEO of a company and employees facing termination. Even though the class is a simulation exercise, the terminated student/s typically experience anger and point fingers. Letting natural emotions bubble to the surface helps students practice conflict management in heated situations, and to better cope with stressful situations that may arise in the workplace. Still, the environment is deeply supportive. Mentorship also occupies a central place in Cara's curriculum. Mentors help students navigate professional issues and personal matters like childcare or housing.

## Entering the program

Prospective students come to the program through referrals. Once referred, they must pass a phone screening, an in-person interview, and a drug test (they must remain sober and drug-free during the program). The first two weeks are critical and there

**Table 2. Social return on investment (SROI)<sup>55</sup>**

|   |                    |
|---|--------------------|
| <b>Our social impact:</b>   |                    |
| <b>Annualized contributions to society</b><br>Income taxes paid, social security, sales tax dollars spent   | \$1,261,663        |
| <b>Annualized savings to society</b><br>Temporary assistance for needy families, food stamps, unemployment, health care, substance abuse treatment, housing, recidivism and rearrest for prison and jail, children returned through the Department of Children and Family Services, Medicaid. | +\$6,508,221       |
| <b>Total one-year social impact</b>   | <b>\$7,769,884</b> |
| <b>Determining the social return on investment:</b>   |                    |
| <b>Present value of social investment (over five years)*</b><br><small>*Present value = 'Total one-year social impact' x 5; then discounted based on 30-year treasury bond data, plus an additional 20% to acknowledge the risk inherent in this work.</small>                                | \$24,100,706       |
| <b>The Cara Program's one-year program cost</b>   | ÷ \$4,423,270      |
| <b>Social return on investment</b>  | <b>545%</b>        |

is some attrition. However, almost 70 percent of the students succeed and finish the program.

Student Demographics:<sup>56</sup>

- 54 percent are women.
- 77 percent have a high school diploma/GED.
- 51 percent have a prior conviction.
- Average age: 39.

That Cara uses community support as a basis for lifting expectations across the board is perhaps best exemplified by their daily “Motivations” Program. Motivations starts promptly at 8:30 a.m. and, like a job, students must attend in business attire ready to participate. Students gather into a circle, and a leader starts the activity by asking a thought provoking question, such as:

- Who or what gives you great joy and why?
- At this point in your life, what motivates you? Be specific.
- What is the one thing you would like to improve about yourself? How will you do this?
- What is your definition of success?
- What are you afraid of, and how are you overcoming that fear?

After the question is asked, the leader selects a student to answer the question. Following that, the chosen student leads the group in song, and then selects another student to respond to the question. The next student steps into the motivational circle and repeats the exercise.

This exercise has multiple functions: developing timeliness, responsibility, and, of course, motivation. Also, because the students are given this question to consider the preceding day, Motivations functions as a sort of “homework.” Importantly, students who are unprepared are not given a pass. Instead, someone from the staff explains to the student in a firm but caring manner how the expectations of the exercise were not met, and helps the student recognize the importance of meeting expectations going forward.

Ultimately, the program is designed to make students “interview ready” so that they can achieve their main goal of transitioning out of the program and into a job. To make this concept of readiness concrete, the Cara team created the following checklist of requirements:

- Had a sample application and resume approved
- Secured stable housing and childcare
- Prepared an interview prep folder, completed interview class and class homework
- Achieved a satisfactory score in mock interviews

- Obtained appropriate documentation of education, background, and medical conditions, as applicable
- Consistently adhered to The Cara Program's dress code policy
- Demonstrated adequate skills in conflict management, time management, team building, professionalism, and communication<sup>57</sup>

stability, and lasting benefits, but also provides a model of professionalism for the next generation. The long-term goal is to break the cycle of poverty and homelessness.

Once a student secures a job, Cara maintains contact with the student and their workplace for at least a year. This follow-up is intended to encourage continuity and ensure that students are comfortable in their new roles. Through a series of phone calls with both the students and their supervisors, Cara builds a full picture of the students' progress. Moreover, Cara remains alert to the forces not directly job-related that could lead one to resign, such as lack of housing stability, childcare, etc. Former students may qualify for rental assistance and emergency utility payments. Additionally, once placed into a job, former students receive \$50 in a savings account as seed funds to encourage savings.<sup>58</sup>

After one year, 70 percent of the students remain employed at their new positions. In comparison, one-year job retention rates for the nation are 50 percent. The average wage of an employed Cara student is \$10.50, higher than the Illinois minimum wage of \$8.25.<sup>59</sup>

The program – while clearly effective – is expensive to run and requires substantial support from private donors. To emphasize the value of investing in the program, analysts from Cara have devised a method for calculating its social return on investment (SROI). The calculation looks beyond the job placement itself and examines future savings to society, both in the form of revenues received and costs avoided. As table 2 shows, Cara estimates that every dollar invested in the program yields \$5.45 (over five years) “in tax contributions, social security, sales taxes paid, and costs avoided (in shelter expenses, cash assistance, unemployment benefits, healthcare costs, food stamps, rearrests cost, and the like).”<sup>60</sup>

Cara has placed over 3,250 students into permanent employment since its inception.<sup>61</sup> Helping one generation find a secure job provides income,



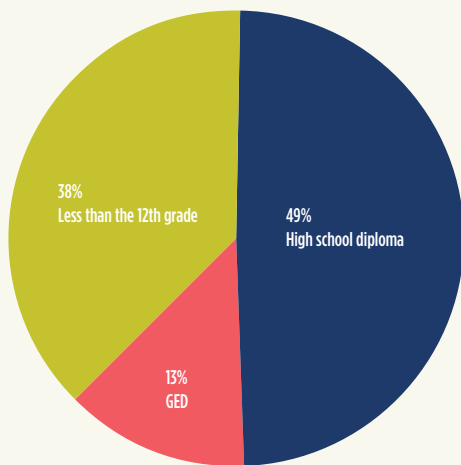
## Second chances in the land of opportunity

America has long been known as the “land of opportunity.” Yet for those who have been arrested or convicted of a crime, second chances in the labor market are often elusive. Since many states hold employers liable for criminal actions of employees, firms are reluctant to hire applicants with criminal

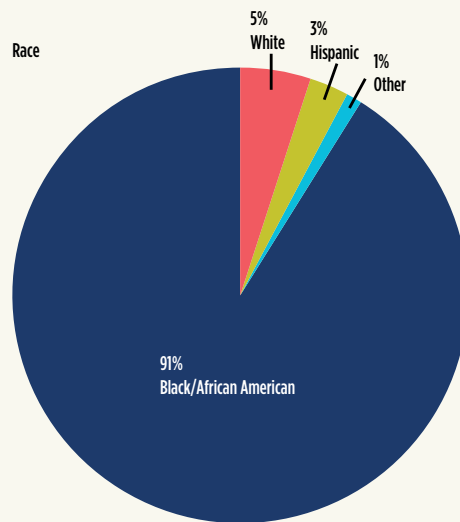
or even arrest records. Summarizing results from a multi-city survey, Berkeley economist, Steven Raphael, states that “over 60 percent of employers surveyed ... would ‘probably not’ or ‘definitely not’ hire applicants with records.”<sup>1</sup> Additionally, in Chicago, 92 percent of employers require background checks on all job applicants.<sup>2</sup> While employers understandably wish to limit their liability, this practice imposes significant costs on society – primarily because those with criminal

### Intern demographics

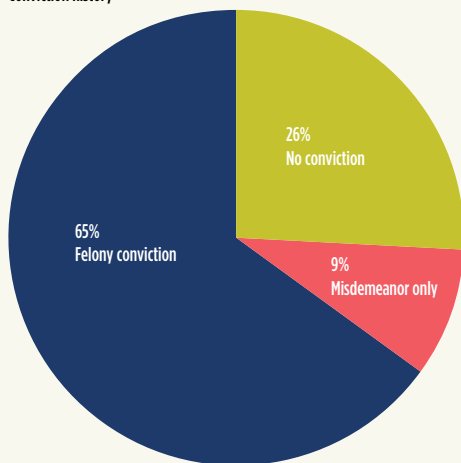
Education attainment



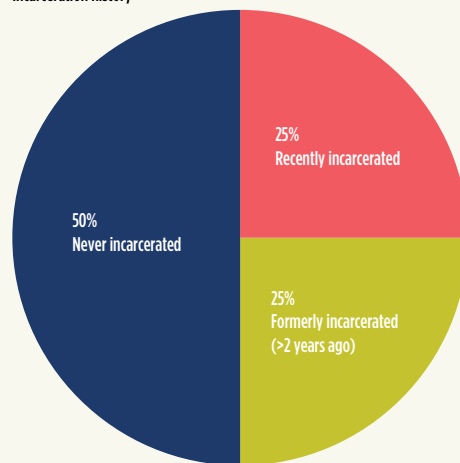
Race



Conviction history



Incarceration history



Source: Cleanslate, powered by The Cara Program, Performance Update as of December 31, 2013, available at [http://www.cleanslatechicago.org/sites/default/files/uploads/2014\\_CLSLT\\_PerformUpdate\\_Q1\\_03.pdf](http://www.cleanslatechicago.org/sites/default/files/uploads/2014_CLSLT_PerformUpdate_Q1_03.pdf).

records represent a large fraction of the population and potential labor force.<sup>3</sup>

What most people do not realize is how integrated the unemployment rate is with people who have criminal histories. In Federal Reserve Chair Janet Yellen's first public speech, "What the Federal Reserve is Doing to Promote a Stronger Job Market," at the 2014 National Interagency Community Reinvestment Conference in Chicago, she discussed long-term unemployed and why the recovery could still feel like a recession, since (at the time) "the national unemployment rate is still higher than it ever got during the 2001 recession." Yellen mentioned several Chicago residents (by name) who were long-term unemployed, two of whom were ex-offenders. Though she did not mention they were ex-offenders, some media outlets commented that Chairman Yellen's mention of these individuals drew attention to people who were somehow less worthy of employment due to their records. However, a 2012 study in the journal *Pediatrics* (cited in a countering Washington Post article following the conference) found that about one third of the U.S. population is arrested (though much less are convicted) at least once by age 23. Further, research from the Center for Economic and Policy Research (CEPR) calculates that reduced employment among ex-offenders cost the economy roughly 1.5 million workers in 2008, or 0.8 percentage points in the overall unemployment rate.<sup>4</sup> With the national unemployment rate currently at 5.9 percent, a decrease of 0.8 percentage points would be significant. In terms of output, CEPR estimates the cost at over \$57 billion of lost GDP.

The Equal Employment Opportunity Commission (EEOC) offers regulatory guidance for employers hiring people with arrest or conviction records. This EEOC guidance, under the Civil Rights Act of 1964, explains that only convictions signify criminal conduct; arrests alone do not. It also guides companies to understand that arrest means only that an individual was suspected of wrongdoing; conviction means an individual is legally responsible for an act of wrongdoing, but even so a particular act may or may not make a person unfit for certain jobs.<sup>5</sup> The commission urges employers not to exclude candidates solely on the basis of a

conviction, if the related offense is not pertinent to the position to which they applied, and several lawsuits have been filed on this theory. Additionally, there are negative effects of incarceration on young people and their future work prospects, according to the National Association for the Advancement of Colored People: "Jail reduces work time of young people over the next decade by 25-30 percent when compared with arrested youths who were not incarcerated."<sup>6</sup>

The Cara Program, which is described in more depth in this edition, seeks to help the hardest people to employ. In addition to training students, The Cara Program also runs Cleanslate, a social enterprise that employs students with particularly high barriers to employment (see the intern demographics on educational attainment, conviction history, and incarceration history). Cleanslate provides neighborhood beautification services throughout Chicago, giving students work experience in plowing snow, trimming lawns, and removing trash from streets.<sup>7</sup>

## Notes

1. Raphael, Steven, 2007-08, "The employment prospects of ex-offenders, *Focus*, Vol. 25, No. 2, Fall-Winter, available at <http://www.irp.wisc.edu/publications/focus/pdfs/foc252d.pdf>.
2. Shriver Center, "Illinois Legislation Will Give Thousands of Individuals with Criminal Records a Chance to Take Care of Themselves and Their Loved Ones," available at <http://povertylaw.org/about/media/community-justice-legis>.
3. A study in the *Official Pediatrics Journal* estimates the arrest prevalence rate among youth to be 25 percent to 41 percent by age 23. "Cumulative Prevalence of Arrest From Ages 8 to 23 in a National Sample" in the *Official Journal of the American Academy of Pediatrics*, available at <http://pediatrics.aappublications.org/content/129/1/21.abstract>.
4. Schmitt, John, and Kris Warner, 2010, "Ex-offenders and the Labor Market," Center for Economic and Policy Research, November, available at <http://www.cepr.net/documents/publications/ex-offenders-2010-11.pdf>.
5. EEOC Enforcement Guidance, "Consideration of Arrest and Conviction Records in Employment Decisions Under Title VII of the Civil Rights Act of 1964," available at: [http://www.eeoc.gov/laws/guidance/arrest\\_conviction.cfm#l](http://www.eeoc.gov/laws/guidance/arrest_conviction.cfm#l).
6. National Association for the Advancement of Colored People, "Criminal Justice Fact Sheet," available at <http://www.naacp.org/pages/criminal-justice-fact-sheet>.
7. Cleanslate, The Impact, "We Do the Numbers," available at <http://www.cleanslatechicago.org/cs/impact>.

# Early childhood education: “Workforce development” for the long run

---

In the midst of last year’s federal budget showdown, Austan Goolsbee defended funding for early childhood education in a *Wall Street Journal* editorial.<sup>62</sup> Goolsbee, an economics professor at the University of Chicago and former chairman of President Obama’s Council of Economic Advisers, reasoned that while budget cuts may save money in the short term, these savings are more than offset in the long term by costs stemming from incarceration, teen pregnancy, and other unwanted outcomes that impact low-income youth and young adults disproportionately. Extensive research links quality early education programs with accelerated cognitive development and acquisition of key emotional skills. Accordingly, he reasoned that early childhood education programs may be a low-cost way to steer at-risk youth toward, ultimately, meaningful careers and full participation in the economy. Goolsbee noted, “It seems the best job-training program for a 25-year-old is a quality preschool program at age four.”<sup>63</sup>

Policy arguments like his rest on substantial interdisciplinary effort to understand how – and to what extent – early learning opportunities, supportive interaction, and engagement between pre-school educators and young children correlate with better self-awareness and educational/academic success, and influence a range of social, academic, and professional outcomes throughout life. The two

most important aspects (to cognitive development) of interaction, as noted in a recent article appearing in *The Economist*, are intellectual stimulation – talking, reading, and answering questions – and emotional support, all of which must also take place at home where very young children spend most of their time. Therefore, in addition to citing studies demonstrating measurable returns of early education programs, the article concludes that maximizing those returns “includes lending a helping hand to parents who struggle.”<sup>64</sup>

One review of the broad literature contends that “self-control” or “self-regulation” unites all the social and behavioral sciences. Self-control is an umbrella construct that bridges different behaviors, such as impulsivity, conscientiousness, delay of gratification, and “intertemporal choice” (i.e., the ability to choose wisely between options). The same review cited a study showing that “childhood self-control predicts physical health, substance dependence, personal finances, and criminal offending outcomes.... Adolescents with low self-control made mistakes, such as starting smoking, leaving high school, and having an unplanned baby, that could ensnare them in lifestyles with lasting ill effects.”<sup>65</sup>

While genetic factors (and certain environmental factors) are fixed, brain regions that mediate self-control are still highly impressionable in early childhood, when children are developing language,

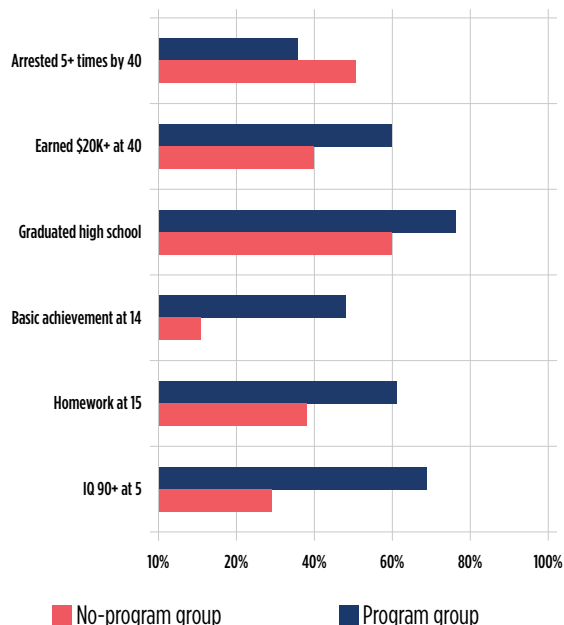
cognitive, and interpersonal skills rapidly. Much research supports the idea that this period of accelerated learning is a critical time window within which children acquire life-changing emotional skills, given access to high-quality childcare and pre-school facilities (and a supportive home environment). Early interventions also have the potential to stem existing negative behaviors before they progress into social and academic problems in adolescence.<sup>66</sup>

As a key behavioral determinant, self-control, as measured by incidence of undesired behaviors/outcomes, provides a vital benchmark for policy researchers and advocates of increased investment in childcare and pre-school facilities. With few exceptions – some low-income children grow to healthy and productive adulthood – the frequency of risky behavior correlates strongly (and inversely) with income. According to the Office of Assistant Secretary for Planning and Evaluations’ July 2009 Research Brief; “Youth from low-income families engage in more risk behaviors during adolescence (3.5 mean cumulative risks) than youth from middle-income (3.2 mean cumulative risks) and high-income (2.9 mean cumulative risks) families.”<sup>67</sup>

The community development field has long recognized that investment in quality childcare (facilities and providers) aligns multiple economic and health-oriented goals. Childcare loans and investments, whether directly, in partnership with, or through community development financial institutions (CDFI), represent a staple product for banks seeking Community Reinvestment Act (CRA) credit. IFF – formerly Illinois Facilities Fund – a nationally recognized CDFI in Chicago with many bank, philanthropic, and government investors, that has financed childcare service providers in low- and moderate-income families since the early 1990s, partnered with Action for Children and Chicago Metropolitan 2020 to produce *The Economic Impact of the Early Care and Education Industry in Illinois*. The report, and others like it that IFF has produced, echo Goolsbee’s sentiments: “An investment in Early Care and Education is much more than an investment in children. It is an investment that helps guarantee the long-term stability of Illinois’ economy, its families and future workforce.”<sup>68</sup>

A few early childhood programs have incorporated emerging insights into the interplay between self-

**Figure 17. Major findings: HighScope Perry Preschool study at age 40**

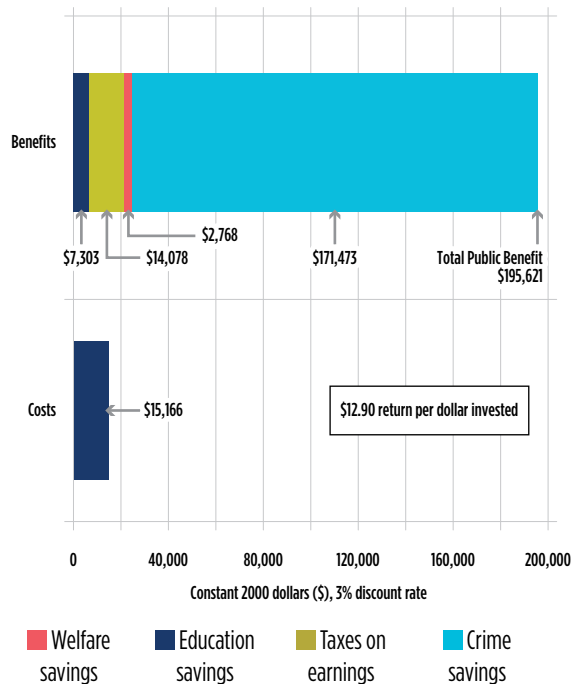


Source: HighScope Perry Preschool Study <http://www.highscope.org/content.asp?contentid=219>

control and the developing brain. *Tools of the Mind*, for instance, is explicitly geared toward stimulating regions of the brain believed to involve self-control. Encouragingly, participants in this program have scored higher than their non-participant peers in general measures of “school-readiness,” thereby suggesting that certain exercises accomplish more than simply “teaching to the test.”<sup>69</sup> While scientifically-designed programs may be especially effective, even traditional games typical of a pre-school program show promise in terms of fostering self-control. Games like “Simon Says,” for instance, ostensibly help kids learn to manage their impulses by challenging them to focus on a subtle stimulus [words] while resisting the urge to react to a compelling stimulus [action].<sup>70</sup>

While time must pass before cutting-edge early childhood programs may be fully evaluated, early panel studies provide hope that current academic insights may indeed translate into practical and cost-effective policy applications. The HighScope Perry Preschool Study, for instance, followed the lives of 123 children born into poverty in the United States. “From 1962 to 1967, at ages 3 and 4, the subjects

**Figure 18. HighScope Perry Preschool Program public costs and benefits**



Source: HighScope Perry Preschool Study <http://www.highscope.org/content.asp?contentid=219>

were randomly divided into a program group that received a high-quality preschool program based on HighScope’s participatory learning approach and a comparison group who received no preschool program. In the study’s most recent phase, 97 percent of the study’s participants still living were interviewed at age 40. Additional data were gathered from the subjects’ school, social services, and arrest records.”<sup>71</sup> The study found that those in the program group were more likely to graduate high school, earned more money, and were arrested less often (see figure 17).

In addition to documenting a number of benefits accrued to its program participants, its social return, the study also argued that early childhood education is a smart financial investment, and estimated the return. Specifically, according to their calculations, there was a \$12.90 return on each dollar invested per student. As figure 18 details, the return stemmed from educational savings, taxes paid, welfare/public assistance not paid, and savings from reduced criminal activity.

Scientifically rooted arguments in favor of early childhood education have gained traction at the highest level of policymaking. In his 2013 State of the Union Address, President Obama offered a less optimistic but still impressive estimate of financial return (likely based on different or fewer criteria): “Every dollar we invest in high-quality early childhood education can save more than seven dollars later on – by boosting graduation rates, reducing teen pregnancy, even reducing violent crime. In states that make it a priority to educate our youngest children, like Georgia or Oklahoma, studies show students grow up more likely to read and do math at grade level, graduate high school, hold a job, [and] form more stable families of their own.”<sup>72</sup> The president followed up his statement with an announcement of the “Early Learning Initiative.” This program, which focuses on education from birth to five years of age, will: (1) provide high-quality preschool for every child; (2) increase the supply of effective early learning opportunities for young children; and (3) extend and expand evidence-based, voluntary home visiting.<sup>73</sup>

Early childhood education, while a demonstrably effective workforce development strategy in the long-run, isn’t naturally the type of policy proposal that sways legislators facing imminent budget shortfalls and deadlines. In Goolsbee’s mind, the conundrum evokes the “The forester’s motto [which] says that the best time to plant a tree was 20 years ago and the second best time is today.” Even so, he asks, “Is it too late to get an arborist into the budget negotiations?”

## Notes

1. [http://www.chicagofed.org/webpages/region/community\\_development/community\\_economic\\_development/ici/ici\\_profiles.cfm](http://www.chicagofed.org/webpages/region/community_development/community_economic_development/ici/ici_profiles.cfm).
  2. Immelt, Jeff and Ken Chenault, 2011, "How We're Meeting the Job Creation Challenge," *The Wall Street Journal*, June 13, available at <http://online.wsj.com/news/articles/SB10001424052702304259304576380323311523538>.
  3. Kiviat, Barbara, 2012, "The Big Jobs Myth: American Workers Aren't Ready for American Jobs," *The Atlantic*, July 25, available at <http://www.theatlantic.com/business/archive/2012/07/the-big-jobs-myth-american-workers-arent-ready-for-american-jobs/260169/>.
  4. Davidson, Adam, 2012, "Skills Don't Pay the Bills," *The New York Times*, November 20, available at [http://www.nytimes.com/2012/11/25/magazine/skills-dont-pay-the-bills.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2012/11/25/magazine/skills-dont-pay-the-bills.html?pagewanted=all&_r=0).
  5. Ibid.
  6. Data and code for both charts obtained from <http://economics.mit.edu/faculty/dautor/data/autor>. Both charts appear in Autor, David, 2010, "The Polarization of Job Opportunities in the U.S. Labor Market," The Hamilton Project and Center for American Progress, April, available at <http://economics.mit.edu/files/5554>. Per that source: "Data are Census IPUMS 5 percent samples for years 1980, 1990, and 2000, and U.S. Census American Community Survey 2008. All occupation and earnings measures in these samples refer to prior year's employment. The figure plots log changes in employment shares by 1980 occupational skill percentile rank using a locally weighted smoothing regression (bandwidth 0.8 with 100 observations), where skill percentiles are measured as the employment-weighted percentile rank of an occupation's mean log wage in the Census IPUMS 1980 5 percent extract. Mean education in each occupation is calculated using workers' hours of annual labor supply times the Census sampling weight. Consistent occupation codes for Census years 1980, 1990, and 2000, and 2008 are from Autor and Dorn (2009a)."
  7. Unlike figure 1a, which depicts shares, however, the sum of the areas above and below the x-axis is not constrained to equal 0 percent – in other words, it's possible for wages to grow or decline across all skills levels.
  8. Autor, David, 2010, "The Polarization of Job Opportunities in the U.S. Labor Market," The Hamilton Project and Center for American Progress, April, available at <http://economics.mit.edu/files/5554>.
  9. Ibid.
  10. Author calculations of data obtained from: Miriam King, Steven Ruggles, J. Trent Alexander, Sarah Flood, Katie Genadek, Matthew B. Schroeder, Brandon Trampe, and Rebecca Vick. Integrated Public Use Microdata Series (IPUMS), Current Population Survey (CPS): Version 3.0. [Machine-readable database]. Minneapolis: University of Minnesota, 2010, available at <https://cps.ipums.org/cps/>. Note that all CPS data referenced in this article was obtained through IPUMS.
  11. Autor, David, and Melanie Wasserman, 2013, "Wayward Sons: The Emerging Gender Gap in Labor Markets and Education," *Third Way*, March, available at <http://economics.mit.edu/files/8754>.
  12. Data and code for chart provided by Melanie Wasserman and David Autor. Graph originally appears in Autor, David and Wasserman, Melanie, 2013, "Wayward Sons: The Emerging Gender Gap in Labor Markets and Education," *Third Way*, March, available at <http://economics.mit.edu/files/8754>. Please refer to endnote 22 of that source for the authors' detailed methodology.
  13. Ibid.
  14. Davidson, Adam, 2012, "Skills Don't Pay the Bills," *The New York Times*, November 20, available at [http://www.nytimes.com/2012/11/25/magazine/skills-dont-pay-the-bills.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2012/11/25/magazine/skills-dont-pay-the-bills.html?pagewanted=all&_r=0).
  15. Economists use the term "intensive margin" to describe a subtle but significant form of demand. In contrast to seeking more of something (the "extensive margin"; e.g., hiring an additional worker), demand increases along the intensive margin correspond to seeking more out of something (e.g., training a worker to become more productive and/or replacing an existing worker with a more productive one). In this article, "upskilling" refers specifically to demand increasing over time along the intensive margin by virtue of employers' raising qualification standards for the same job title.
  16. Author interview with Cindy Tomei, president, Valley Industrial Association.
  17. Sample limited to full-time civilian workers aged 25 and over who were part of an outgoing rotation group during the month of March, who were not self-employed, and who reported non-zero earnings. The annual earnings of individual workers were calculated by multiplying the response to the question "how much do you usually earn per week at this job before deductions?" by 52. In cases where the annual earnings implied by the hourly rate of an hourly worker exceeded this value, the higher implied value was used. All amounts were then expressed in terms of 2013 dollars using CPI-U research series.
- Points on the graph correspond to the five-year moving average of the median earnings – adjusted by the recommended weighting variable – of workers belonging to the indicated occupation and educational attainment groups (e.g., the point indicated as "2000" corresponds to the timeframe 1996-2000). Taking the moving average serves two purposes: broadening the sample size (particularly important for the machinist group), and smoothing out short-term changes.
- The series starts in 1992 because, prior to that year, education was largely tracked in terms of years of schooling rather than attainment. Note that – for the sake of identifying high school graduate earning consistently – individuals who attended college without attaining a degree were omitted from the high school graduate group. Also, note that observations from 1994 are omitted due to difficulty differentiating full-time workers from part-time workers during that year. Accordingly, years prior to 1999 technically correspond to four- rather than five-year moving averages.
18. The Boston Consulting Groups' (BCG) survey analysis was based on responses from 106 companies with U.S. manufacturing operations and with sales greater than \$1 billion. BCG notes that a company's size can impact its view on the skills gap discussion. For example, a large company might be able to 'build' a worker given their resources with training and their networks with community colleges, while a smaller company might not. More information on the survey is available at <http://www.bcg.com/media/pressreleasedetails.aspx?id=tcm:12-104216>.
  19. Bureau of Labor Statistics, U.S. Department of Labor, 2002, "Extended Mass Layoffs in 2001" (Report 963), August, available at <http://www.bls.gov/mls/mlsreport963.pdf>. According to this report, two out of five individuals who filed an initial claim for unemployment benefits in response to a mass layoff event were between the ages of 30 and 44. Age and occupation data from the Current Population Survey in turn suggests that the relative representation of younger machinists increased around the same time, while that of older machinists remained stable.
  20. Sirkin, Harold L., Michael Zinser, and Justin Rose, 2013, "The U.S. Skills Gap: Could it Threaten a Manufacturing Renaissance?," August 28, The Boston Consulting Group, available at [https://www.bcgperspectives.com/content/articles/lean\\_manufacturing\\_us\\_skills\\_gap\\_could\\_threaten\\_manufacturing\\_renaissance/](https://www.bcgperspectives.com/content/articles/lean_manufacturing_us_skills_gap_could_threaten_manufacturing_renaissance/).
  21. Ibid.
  22. Ibid.

23. Cappelli, Peter, 2014, "Skill Gaps, Skill Shortages and Skill Mismatches: Evidence for the U.S.," National Bureau of Economic Research, August, working paper, No. 20382, available at <http://www.nber.org/papers/w20382.pdf>.
24. Ibid.
25. The Federal Reserve Board, 2000, Remarks by Chairman Alan Greenspan on the evolving demand for skills, April 11, available at <http://www.federalreserve.gov/boarddocs/speeches/2000/20000411.htm>.
26. General feedback from CDPS Survey, administered February 2014.
27. Frizell, Sam, 2014, "Student Loans Are Ruining Your Life. Now They're Ruining the Economy, Too," *Time*, February 26, available at <http://time.com/10577/student-loans-are-ruining-your-life-now-theyre-ruining-the-economy-too/>.
28. Lieber, Ron, 2010, "Placing the Blame as Students Are Buried in Debt," *The New York Times*, May 28, available at <http://www.nytimes.com/2010/05/29/your-money/student-loans/29money.html?pagewanted=all>.
29. Moretti, Enrico, 2012, *The New Geography of Jobs*, Houghton Mifflin Harcourt.
30. Congressional Budget Office, 2011, "Changes in the Distribution of Workers' Hourly Wages Between 1979 and 2009," February 16, available at <http://www.cbo.gov/sites/default/files/02-16-wagedispers.pdf>.
31. Autor, David, 2010, "The Polarization of Job Opportunities: Implications for Employment and Earnings," April, a paper released by The Center for American Progress and The Hamilton Project, available at <http://economics.mit.edu/files/5554>.
32. Goldin, Claudia, and Lawrence Katz, 2008, *The Race between Education and Technology*, Harvard University Press.
33. Autor, David, 2010, "The Polarization of Job Opportunities: Implications for Employment and Earnings," April, a paper released by The Center for American Progress and The Hamilton Project, available at <http://economics.mit.edu/files/5554>.
34. Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database], Minneapolis: University of Minnesota, 2010.
35. Ibid.
36. Autor, David, 2010, "The Polarization of Job Opportunities: Implications for Employment and Earnings," April, a paper released by The Center for American Progress and The Hamilton Project, available at <http://economics.mit.edu/files/5554>.
37. Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database], Minneapolis: University of Minnesota, 2010.
38. Autor, David, 2010, "The Polarization of Job Opportunities: Implications for Employment and Earnings," April, a paper released by The Center for American Progress and The Hamilton Project, available at <http://economics.mit.edu/files/5554>.
39. There is no consensus in the literature as to the reason for this phenomenon, but the late Gary Becker and colleagues at the University of Chicago argued that women have outpaced men because women as a group have superior noncognitive skills, which include perseverance, motivation, and self-control. They report that women have higher average grades and standardized test scores, as well as lower variance among scores than men. Autor has linked the gap in male educational attainment to changes in family structure, income, and parental education.
40. College Board, 2013, "Trends in College Pricing: 2013," available at <https://trends.collegeboard.org/sites/default/files/college-pricing-2013-full-report-140108.pdf>.
41. FinAid, Student Loan Debt Clock, available at <http://www.finaid.org/loans/studentloandebtclock.phtml>.
42. Avery, Christopher, and Sarah Turner, 2012, "Student Loans: Do College Students Borrow Too Much – Or Not Enough?," *Journal of Economic Perspectives*, pp. 165-192. While it is straightforward to verify that college graduates generally earn more than high school graduates, economists debate the extent to which a college education truly causes higher earnings. It may be that colleges simply attract people who would earn more regardless. Some portion of workers, successful entrepreneurs for example, choose not to attend (or complete) college and still earn high incomes. Avery and Turner report that the additional net present value of lifetime earnings for college graduates disappears only when 25 percent or less of the observed difference in earnings can be attributed causally to completing college, an unlikely proportion.
43. In economics, this is known as the diploma or "sheepskin" effect. It posits that employers are not necessarily looking for the knowledge attained from coursework, but rather a signal of productivity.
44. Carnevale, Anthony, Jeff Strohl, and Michelle Melton, 2011, "What's It Worth?: The Economic Value of College Majors," available at <http://cew.georgetown.edu/whatsitworth>.
45. Jaimovich, Nir, and Henry E. Siu, 2012, "The Trend is the Cycle: Job Polarization and Jobless Recoveries," August, the National Bureau of Economic Research, working paper, No. 18334.
46. Avery, Christopher, and Sarah Turner, 2012, "Student Loans: Do College Students Borrow Too Much – Or Not Enough?," *Journal of Economic Perspectives*, pp. 165-192.
47. Deming, David J., Claudia Goldin, and Lawrence F. Katz, 2012, "The For-Profit Postsecondary School Sector: Nimble Critters or Agile Predators," *Journal of Economic Perspectives*, pp. 139-164.
48. Jenkins, Davis, and Sung-Woo Cho, 2012, "Get With the Program: Accelerating Community College Students' Entry into and Completion of Programs of Study," January, CCRC working paper, No. 32, available at <http://ccrc.tc.columbia.edu/publications/get-with-the-program.html>.
49. Completion by Design, 2013, "Designing for Completion: The practice and the progress of the Completion by Design initiative," October 14, available at <http://completionbydesign.org/about-us/news/designing-for-completion-mid-initiative-update>.
50. Berdahl, Robert M., 2014, "The Future of Flagship Universities," UC Berkeley Office of the Chancellor, available at <http://chancellor.berkeley.edu/chancellors/berdahl/speeches/future-of-flagship-universities>.
51. Wall, J.K., 2014, "Ivy Tech seeking millions to churn out more degrees," *Indianapolis Business Journal*, March 1, available at <http://www.ijb.com/ivy-tech-seeking-millions-to-churn-out-more-degrees/PARAMS/article/46405>
52. Ibid.
53. The Cara Program, Life & Career Skills, "Building a Framework for Success," available at <http://www.thecaraprogram.org/life-career-skills>.
54. The U.S. Department of Labor describes soft skills in six broad categories: communication; enthusiasm and attitude; teamwork; problem solving and critical thinking; networking; and professionalism. See "Soft Skills to Pay the Bills – Mastering Soft Skills for Workplace Success" at <http://www.dol.gov/odep/topics/youth/softskills/>.
55. The Cara Program, "Social Return on Investment (SROI)," available at <http://www.thecaraprogram.org/sites/default/files/uploads/SROI%20flyer%20a%200212%20%282%29.pdf>.
56. The Cara Program, The Cara Program's Service Delivery Model, available at: <http://www.thecaraprogram.org/sites/default/files/uploads/FY13%20Service%20Delivery%20Model.pdf>
57. Ibid.

58. Ibid.

59. The Cara Program, 2013, Performance Update, RY14 Results as of December 31, available at [http://www.thecaraprogram.org/sites/default/files/uploads/014\\_TCP\\_PerformUpdate\\_02.pdf](http://www.thecaraprogram.org/sites/default/files/uploads/014_TCP_PerformUpdate_02.pdf).

60. The Cara Program, The Impact, "Performance Updates," available at <http://www.thecaraprogram.org/impact/numbers>.

61. The Cara Program, About Us, available at <http://www.thecaraprogram.org/about>.

62. Goolsbee, Austan, 2013, Pre-K Education Is a Long-Term Winner: At \$10,000 per child yearly, high-quality early education is a bargain, *The Wall Street Journal*, December 8, available at <http://online.wsj.com/news/articles/SB10001424052702304096104579238604245143082>.

63. Goolsbee, Austan, 2013, Pre-K Education Is a Long-Term Winner: At \$10,000 per child yearly, high-quality early education is a bargain, *The Wall Street Journal*, December 8, available at <http://online.wsj.com/news/articles/SB10001424052702304096104579238604245143082>.

64. The Economist, 2014, "Choose your parents wisely," July 26, available at <http://www.economist.com/news/united-states/21608779-there-large-class-divide-how-americans-raise-their-children-rich-parents-can>.

65. Moffitt, Terrie, et al., "A gradient of childhood self-control predicts health, wealth, and public safety," Proceedings of the National Academy of Sciences of the United States of America, available at <http://www.pnas.org/content/early/2011/01/20/1010076108.full.pdf+html>.

66. Amanda R. Tarullo, Jelena Obradovic, and Megan R. Gunnar, 2009, "Self-Control and the Developing Brain," Zero to Three, available at [http://web.stanford.edu/group/sparklab/pdf/Tarullo,%20Obradovic,%20Gunnar%20\(2009,%200-3\)%20Self-Control%20and%20the%20Developing%20Brain.pdf](http://web.stanford.edu/group/sparklab/pdf/Tarullo,%20Obradovic,%20Gunnar%20(2009,%200-3)%20Self-Control%20and%20the%20Developing%20Brain.pdf).

67. U.S. Department of Health & Human Services, 2009, "ASPE Fact Sheet, Vulnerable Youth and the Transition to Adulthood, Youth from Low-Income Families," July, available at [http://aspe.hhs.gov/hsp/09/VulnerableYouth/3/index.shtml#\\_edn2](http://aspe.hhs.gov/hsp/09/VulnerableYouth/3/index.shtml#_edn2). Please note that the fact sheet sites the following as risky behaviors: "consuming alcohol before age 13, using marijuana before age 16, using other drugs before age 18, selling illegal drugs before age 18, engaging in sex before age 16, stealing something worth less than \$50 before age 18, stealing something worth more than \$50 before age 18, destroying property before age 18, committing other property crime before age 18, being a member of a gang before age 18, getting into a fight before age 18, carrying a gun before age 18, and running away from home before age 18."

68. IFF, 2005, "The Economic Impact of the Early Care and Education Industry in Illinois," Executive Summary, January, available at <http://www.iff.org/resources/content/3/1/documents/eissummary.pdf>.

69. Amanda R. Tarullo, Jelena Obradovic, and Megan R. Gunnar, 2009, "Self-Control and the Developing Brain," Zero to Three, available at [http://web.stanford.edu/group/sparklab/pdf/Tarullo,%20Obradovic,%20Gunnar%20\(2009,%200-3\)%20Self-Control%20and%20the%20Developing%20Brain.pdf](http://web.stanford.edu/group/sparklab/pdf/Tarullo,%20Obradovic,%20Gunnar%20(2009,%200-3)%20Self-Control%20and%20the%20Developing%20Brain.pdf).

70. Amanda R. Tarullo, Jelena Obradovic, and Megan R. Gunnar, 2009, "Self-Control and the Developing Brain," Zero to Three, available at [http://web.stanford.edu/group/sparklab/pdf/Tarullo,%20Obradovic,%20Gunnar%20\(2009,%200-3\)%20Self-Control%20and%20the%20Developing%20Brain.pdf](http://web.stanford.edu/group/sparklab/pdf/Tarullo,%20Obradovic,%20Gunnar%20(2009,%200-3)%20Self-Control%20and%20the%20Developing%20Brain.pdf).

71. HighScope, 2005, Inspiring Educators to Inspire Children, HighScope Perry Preschool Study, "Lifetime Effects: The HighScope Perry Preschool Study Through Age 40," available at <http://www.highscope.org/content.asp?contentid=219>.

72. The White House, 2013, "Remarks by the President in the State of the Union Address," February 12, available at <http://www.whitehouse.gov/the-press-office/2013/02/12/remarks-president-state-union-address>.

73. Fact Sheet on President Obama's Plan for Early Education for all Americans, available at: [https://www.acf.hhs.gov/sites/default/files/occ/fact\\_sheet\\_president\\_obama\\_508.pdf?nocache=1365545777](https://www.acf.hhs.gov/sites/default/files/occ/fact_sheet_president_obama_508.pdf?nocache=1365545777).

---

## Biographies

**Emily Engel** is a senior research analyst in the Community Development and Policy Studies division at the Federal Reserve Bank of Chicago.

**Daniel DiFranco** is a senior research analyst in the Community Development and Policy Studies division at the Federal Reserve Bank of Chicago.

**Ryan Patton** is a former associate economist in the Community Development and Policy Studies division at the Federal Reserve Bank of Chicago.

---





FEDERAL RESERVE SYSTEM COMMUNITY DEVELOPMENT RESEARCH CONFERENCE

## ECONOMIC MOBILITY

RESEARCH & IDEAS ON STRENGTHENING  
FAMILIES, COMMUNITIES & THE ECONOMY

**Save the Date**

**April 2-3, 2015**

For additional information on the  
2015 Federal Reserve System Community Development Research Conference,  
please visit: <http://www.federalreserve.gov/communitydev/>

Contact: Alexandra Brown, [alexandra.m.brown@frb.gov](mailto:alexandra.m.brown@frb.gov)

# FUTURE FOCUS

PREPARING FOR WORKFORCE 2020

**SAVE THE DATE-FEBRUARY 19, 2015**

8:30 AM-4:30 PM

FEDERAL RESERVE BANK OF CHICAGO

For additional information on the Future Focus: Preparing for Workforce 2020 conference,  
please contact Jason Keller at [cdpsevents@chi.frb.org](mailto:cdpsevents@chi.frb.org)

# FEDERAL RESERVE BANK OF CHICAGO

*Published by the Community Development and Policy Studies Division*

---

PO BOX 834  
CHICAGO, IL 60690-0834

PRESORT  
STANDARD MAIL  
US POSTAGE PAID  
DOWNERS GROVE, IL  
PERMIT NO. 687

RETURN SERVICE REQUESTED

**Attention:**

Executive Officers

Board of Directors

CRA Officers

Community Lenders

Community Representatives