

**ECONOMY**

# Research: When the Economy Is Good, Employers Demand Fewer Credentials

by Alicia Sasser Modestino and Daniel Shoag

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Although the unemployment rate is currently at a historic low of 4%, economists are still struggling to understand why it remained so painfully high after the Great Recession—and why it took five years to return to its pre-recession level. Our research

points to one possible reason: employers increased skill requirements during the recession, when high-skill workers were more plentiful, making it more difficult to fill those positions as the job market began to recover. However, since then, some employers have been lowering education and experience requirements in an effort to clear the backlog of open vacancies.

First, some context. Typically, there's a stable tradeoff between the unemployment rate and the job vacancy rate (this is known as the "Beveridge Curve"). During a recession, the job vacancy rate falls as the unemployment rate rises, and during a recovery, the reverse happens. However, after 2009, despite employers reporting an increasing number of vacancies, the unemployment rate hardly budged, resulting in an outward shift in the Beveridge Curve that persisted through the end of 2017.

Economists have recently begun to suspect that the shift was caused by a decrease in "recruitment intensity." Recruitment intensity is a shorthand term to describe everything employers can do to affect the likelihood of filling a job vacancy, such as changes in advertising expenditures, screening methods, hiring standards, and compensation. Lower recruitment intensity increases the time it takes to fill a job, which means more unfilled jobs and a higher job openings rate for a given level of unemployment. Such a change in recruitment intensity increases the tradeoff between the unemployment rate and the job openings rate, shifting the Beveridge Curve outward.

In our research, we investigate one of the most important dimensions of recruitment intensity—the skill requirements employers use to screen candidates when filling a new vacancy. Media reports during the recession indicated that employer requirements were increasing sharply, with popular headlines touting "Degree Inflation? Jobs That Newly Require B.A.'s". Similarly, according to a survey by CareerBuilder in 2013, almost a third of employers said that their educational

requirements for employment had recently increased, and specifically that they were hiring more college-educated workers for positions previously held by high school graduates.

Using a new database from Burning Glass Technologies containing 83 million online job postings between 2007 and 2014, across all U.S. industries, we indeed found strong evidence of this upskilling. Employers raised education and experience requirements within occupations, and even within firm and job titles, during the Great Recession when workers were plentiful. But perhaps what was more surprising was that employers subsequently lowered these skill requirements during the recovery, as workers became more scarce.

The top panel here shows that the share of job postings requiring a bachelor's degree or higher rose by more than 10 percentage points during the recession (from 2007 to 2010) and then fell as labor markets recovered (from 2010 through 2014). Similarly, the middle panel shows that the share of postings requiring 5 or more years of experience rose by roughly 7 percentage points during the recession and then fell as the labor market recovered. While the requirements did not fully drop to pre-recession levels, the figures indicate that an important part of the rise in skill requirements was indeed opportunistic in response to the availability of skilled workers during the Great Recession.

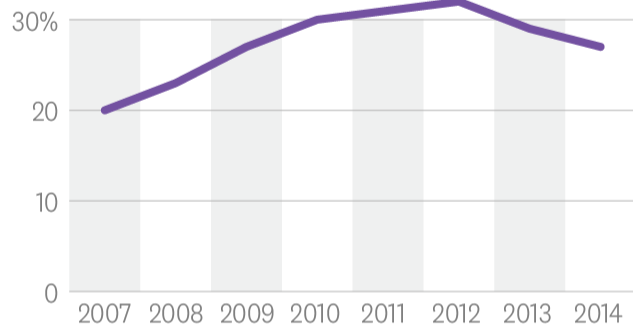
Of course, these national aggregate trends could be misleading, so we use the richness of the job posting data to analyze the relationship at the state and county levels. We show that the increase in employer skill requirements was greater in areas where the unemployment rate rose more dramatically and the decrease was larger in areas where the unemployment rate fell more swiftly during the recovery.

## How Job Skill Requirements Changed Between 2007–2014

Employers required more skills and experience for jobs during the Great Recession—but then lowered these requirements as the economy started to recover.

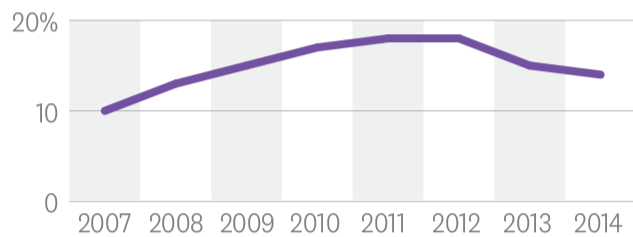
### Education

% of postings requiring a bachelor's degree or greater

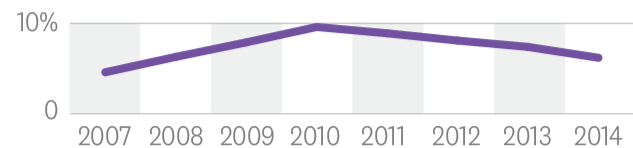


### Experience

% of postings requiring >5 years of experience



### Annual unemployment rate (%)



Source: Alicia Sasser Modestino and Danial Shoag's analysis of U.S. Bureau of Labor Statistics data and job postings data from Burning Glass Technologies



How sizeable is this upskilling relationship? For example, within occupations, a 1 percentage point increase in the state unemployment rate is associated with a 0.6 percentage point increase in the fraction of employers requiring a Bachelor's degree and a 0.8 percentage point increase in the fraction of employers requiring four or more years of experience. This accounts for roughly a third of the total increase in skill requirements observed during the Great Recession.

These effects are very robust, showing up within specific occupations and even job titles. For example, only 15% of physician assistant jobs required a Bachelor's degree or higher in 2007. That share jumped to 35% in 2010 and has since fallen to just 12% as of 2017.

Moreover, upskilling extends beyond just education and experience to requirements for baseline skills (e.g.

project management), specialized skills (e.g., information security), and software

skills (e.g., Adobe Dreamweaver) as well. Interestingly, baseline skills, that can typically be learned on the job, were more likely to fall during the recovery compared to specialized or software skills, that often require more formal instruction or training.

### **Explaining the Rise and Fall of Skill Requirements**

Why would employers raise skill requirements during recessions and then decrease them during recoveries? Typically, college-educated workers are paid a wage premium of roughly 60% compared to less-educated workers, yet during recessions the college wage premium for new hires falls. We conjectured that employers respond to the falling premium for skilled workers and their increased availability by *opportunistically* raising their requirements to be hired.

In other words, when there are more job seekers out there, employers raise requirements because, as one CEO noted, “[t]he recession is a wonderful opportunity to acquire top talent.” Of course, this theory predicts that skill requirements should fall when the labor market tightens. As one employer we talked to reported, “managers have to be much more flexible now than during the recession because there’s less talent available.”

But while this explanation seems straightforward, it’s not the only possible one. Others have argued that the rise in skill requirements during this period was driven by changes in technology or outsourcing. These types of structural changes, which may have been accelerated by the recession, would lead to persistent, permanent changes in the skills being demanded.

To differentiate between these two stories, we needed to find a situation that was not related to the recession where there were sudden and unexpected changes in the number of job hunters, independent of any underlying structural changes that were

planned like increasing automation. We did this using two “natural experiments”—changes in the supply of workers that were unrelated to the business cycle.

The first is the drawdown of troops from Iraq and Afghanistan that lead to an additional 200,000 to 300,000 veterans entering the U.S. domestic labor force each year between 2009 and 2012. Consistent with the upskilling hypothesis, we find that veteran-specific occupations (e.g., law enforcement, first responders, aircraft mechanics, logisticians) in states receiving larger numbers of returning veterans correspondingly experienced a greater increase in their skill requirements.

The second is the hydraulic fracturing or “fracking” boom in natural gas, when discoveries of large shale gas deposits boosted production by 27% between 2007 and 2011. This sudden jump in production increased employment and wages in the fracking industry, luring a high number of workers away from other industries such as agriculture, timber, metal-based mining, and manufacturing. For these other industries, the fracking boom led to an unexpected shortage of workers. Consistent with our upskilling/downskilling hypothesis, we find that occupations in these industries that competed for workers cut education and experience requirements in response to the tighter labor market.

The finding that employer skill requirements are driven—in part—by the available supply of labor helps our understanding of how the labor market works. It also makes a difference for workforce policy. Our results indicate that the demand for skilled workers is dynamic and responsive to labor market conditions, with employers acting strategically to fill positions with higher-skilled workers when such workers are plentiful.

As a result, education and training programs need to be designed with this cyclicity in mind. Similarly, firms need to develop the capacity to adapt to changes in worker skillsets when the labor conditions shift from a buyers' to a sellers' market. Making use of real-time labor market data can help both sides of the market respond more quickly to changes, hopefully mitigating the consequences of future business cycles.

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**Alicia Sasser Modestino** is an associate professor in the School of Public Policy and Urban Affairs at Northeastern University. She earned her MA and PhD in economics from Harvard University and her BA from Boston University. Her research interests include labor market dynamics, skills mismatch, and youth workforce development.

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**Daniel Shoag** is an associate professor at the Kennedy School at Harvard University and Case Western Reserve University. He earned his BA, MA, and PhD in economics from Harvard University. His research interests include labor market dynamics, employer responses to regulations, and public finance.

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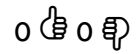
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**Tiegler Rossi** 14 hours ago

I'm not so sure. We still have the gatekeepers who are getting less and less astute: the human resources departments. We hear there's a labor shortage, yet HR departments are not looking at functions on resumes, just job titles. They are the impediment right now. I'd love to read an article about this phenomenon.

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