Education, Skills, and Employer Preferences in the Middle-Skills Marketplace

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Organized by the Federal Reserve Bank of Philadelphia

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- The CD function within the Federal Reserve System—consisting of individual departments at each of the 12 Federal Reserve Banks, as well as at the Board of Governors—promotes economic growth and financial stability for low- and moderate-income (LMI) communities and individuals through a range of activities, including:
 - Convening stakeholders, including practitioners, financial institutions, nonprofits, governmental agencies, and the philanthropic and private sectors
 - Conducting and sharing research to examine economic challenges facing LMI communities and attendant policy implications
 - Identifying emerging issues



Today's Presenters and Agenda

- Mels de Zeeuw, Research Analyst II, Federal Reserve Bank of Atlanta
- Keith Wardrip, CD Research Manager, Federal Reserve Bank of Philadelphia
- Sally Smyth, Director of Community Finance and Impact, Opportunity@Work
- Papia Debroy, Director of Employer Solutions, Opportunity@Work
- Andi Rugg, Executive Director for Skillful Colorado, Markle Foundation
- The following will be discussed:
 - New research on the level of education employers seek in candidates for middle-skills jobs
 - Efforts to connect prospective workers and employers that rely on candidates' skills and competencies rather than on educational attainment

Exploring Employers' Preferences for Education in the Middle-Skills Job Market

Mels de Zeeuw

Research Analyst II Federal Reserve Bank of Atlanta mels.dezeeuw@atl.frb.org



Research on "Opportunity Occupations"

- An "opportunity occupation" is one that:
 - Is generally considered accessible to a worker without a bachelor's degree
 - Pays an annual median wage at or above the national annual median wage, adjusted for differences in local consumption prices
- The analysis uses three data sets to understand the level of education required or preferred for each occupation:
 - U.S. Bureau of Labor Statistics
 - O*NET
 - Burning Glass Technologies
- Main findings:
 - In 2014, 37 million jobs (27.4 percent) were classified as an opportunity occupation, down from 38.7 million (29.8 percent) in 2005.
 - There is large variation among metro areas: e.g., opportunity occupations represented
 32.1 percent of employment in Louisville-Jefferson County, Kentucky, but just 11.9
 percent in New York-Northern New Jersey-Long Island.

Source: Wardrip, Keith, Kyle Fee, Lisa Nelson, and Stuart Andreason. "Identifying Opportunity Occupations in the Nation's Largest Metropolitan Economies," Federal Reserve Banks of Philadelphia, Cleveland, and Atlanta, September 2015.

Most Prevalent Opportunity Occupations in 100 Largest Metro Areas (May 2014)

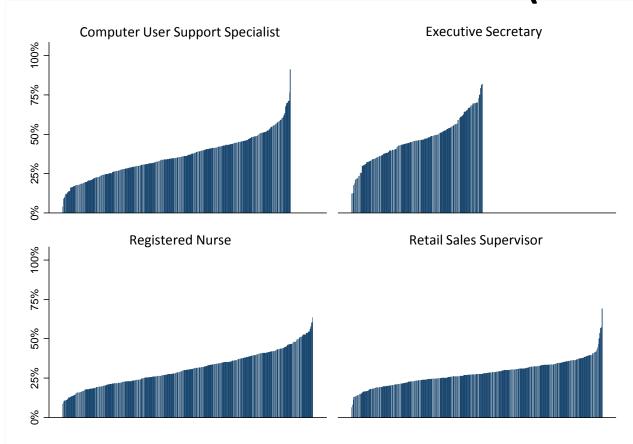


Occupation	Employment
Registered Nurse	1,763,300
First-Line Supervisor of Office and Administrative Support Workers	1,025,020
Bookkeeping, Accounting, and Auditing Clerk	848,100
Heavy and Tractor-Trailer Truck Driver	824,960
First-Line Supervisor of Retail Sales Workers	719,270
Executive Secretary and Executive Administrative Assistant	550,500
Maintenance and Repair Worker, General	538,510
Computer User Support Specialist	440,650
Police and Sheriff's Patrol Officer	430,880
Licensed Practical and Licensed Vocational Nurse	415,170
Secretary and Administrative Assistant	406,620
Electrician	385,080

Note: Based on both the typical entry-level education and the views of current workers.

Source: Wardrip, Keith, Kyle Fee, Lisa Nelson, and Stuart Andreason. "Identifying Opportunity Occupations in the Nation's Largest Metropolitan Economies," Federal Reserve Banks of Philadelphia, Cleveland, and Atlanta, September 2015.

Percent of Online Job Ads Requesting a Bachelor's Degree or Higher for Each Metro Area (2011–2014)



Note: Each bar represents one metro area. Only metro areas with at least 50 job ads are represented.

Source: Analysis of Burning Glass Technologies data (2011–2014) for Wardrip, Keith, Stuart Andreason, and Mels de Zeeuw. "Uneven Opportunity: Exploring Employers' Educational Preferences for Middle-Skills Jobs," Cascade Focus, Federal Reserve Banks of Philadelphia and Atlanta, January 2017.

What Explains this Metro-to-Metro Variation?

- Research question: What factors explain the metro area variation in employers' preferences for college-educated workers?
- Focus on four opportunity occupations:
 - Computer user support specialist
 - Registered nurse
 - Retail sales supervisor
 - Executive secretary

Methodology

- Used data from Burning Glass Technologies (26.9 million job ads), U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, Integrated Postsecondary Education Data System (IPEDS), and U.S. Census Bureau
- Developed a series of binary logistic regression models to determine how certain job and metro area characteristics influence the probability that an employer requests a bachelor's degree for these occupations
- Controlled for the industry of the employer, the level of experience requested, the number and type of skills requested, the year the ad was placed, and whether it was placed by a recruiter

Findings

Average Marginal Effects for Metro Area Characteristics	Computer user support specialist	Registered nurse	Retail sales supervisor	Executive secretary	All occupations
Census region (South is reference)					
Northeast	4.2%	8.9%	2.7%	4.8%	1.9%
Midwest	1.3%	3.9%	0.6%	_	0.8%
West	-3.3%	4.6%	2.8%	1.7%	-0.2%
Population (<250,000 is reference)					
250,000–499,999	3.1%	0.8%	2.3%	-1.7%	0.4%
500,000–999,999	3.8%	_	1.5%	_	0.6%
1,000,000–2,499,999	4.8%	1.3%	3.1%	_	1.3%
>2,500,000	6.2%	4.3%	2.9%	3.7%	2.0%
Degree completions per 1,000 labo	r force participants (Quar	tile 1 is referenc	ce)		
Quartile 2	4.9%	3.6%	1.7%	3.1%	1.6%
Quartile 3	4.5%	3.8%	1.9%	8.1%	2.2%
Quartile 4	5.6%	2.2%	0.7%	11.0%	2.7%
Average annual wages (\$10,000s)	5.0%	2.0%	1.2%	4.5%	1.9%
Unemployment rate	0.6%		-0.7%	0.6%	0.0%
Percent foreign born	0.1%	-0.2%	0.2%	0.1%	0.0%
Presence of a research university	0.5%	_	_	-1.6%	0.2%

Notes: Values are statistically significant with at least 95 percent confidence (p < 0.05). "—" indicates the result was not statistically significant. Source: Wardrip, Keith, Stuart Andreason, and Mels de Zeeuw. "Uneven Opportunity: Exploring Employers' Educational Preferences for Middle-Skills Jobs," Cascade Focus, Federal Reserve Banks of Philadelphia and Atlanta, January 2017.

Relative Likelihood of Employers Requesting a Bachelor's Degree (Compared with Atlanta Metro Area)

METRO AREA	Computer user support specialist	Registered nurse	Retail sales supervisor
Boston-Cambridge-Quincy, MA-NH	6%	9%	3%
Bridgeport-Stamford-Norwalk, CT	11%	_	6%
Colorado Springs, CO	-16%	22%	_
Huntsville, AL	-19%	-17%	_
Jacksonville, FL	-9%	-7%	_
Miami-Fort Lauderdale-Pompano Beach, FL	-9%	-9%	5%
Nashville-Davidson-Murfreesboro-Franklin, TN	-11%	-14%	_
New York-Northern New Jersey-Long Island, NY-NJ-PA	5%	18%	10%
Orlando-Kissimmee-Sanford, FL	-14%	10%	_
Portland-Vancouver-Hillsboro, OR-WA	-7%	18%	_
San Jose-Sunnyvale-Santa Clara, CA	6%	6%	19%
Seattle-Tacoma-Bellevue, WA	-13%	11%	21%
Tampa-St. Petersburg-Clearwater, FL	-10%	5%	_
Trenton-Ewing, NJ	7%	12%	5%

Notes: Values are statistically significant with at least 95 percent confidence (p < 0.05). "—" indicates the result was not statistically significant.

Source: Wardrip, Keith, Stuart Andreason, and Mels de Zeeuw. "Uneven Opportunity: Exploring Employers' Educational Preferences for Middle-Skills Jobs," Cascade Focus, Federal Reserve Banks of Philadelphia and Atlanta, January 2017.

Inefficiencies and Opportunities in the Middle-Skills Jobs Market

Keith Wardrip

Community Development Research Manager Federal Reserve Bank of Philadelphia keith.wardrip@phil.frb.org



Questions Raised by the Research

- Why are employers in certain types of metro areas more likely to seek a college-educated candidate for some occupations?
 - Do less-educated workers lack hard skills that are best learned at a four-year institution?
 - Are employers using a college degree as a proxy for soft skills or other intangibles?

Difficulties Filling Middle-Skills Positions

- 38 percent of Harvard Business School alums consider it very or somewhat difficult to fill middle-skills openings.
- 56 percent of human resources (HR) executives report that middle-skills jobs are hard to fill. Leading reasons include:
 - Trained talent is difficult to find (54 percent).
 - Sufficient experience is difficult to find (50 percent).
 - They have to hire people with more education than the position requires to get the talent needed (38 percent).
 - Some skilled workers don't have the right work ethic or ambition for the job (34 percent).

Sources: Fuller, Joseph B., Jennifer Burrowes, Manjari Raman, Dan Restuccia, and Alexis Young. "Bridge the Gap: Rebuilding America's Middle Skills," Report, U.S. Competitiveness Project, Accenture, Burning Glass Technologies, and Harvard Business School, November 2014; Chanmugam, Ravi, David Smith, and Laila Worrell. "Finding the Middle: How Businesses Can Manage the Talent Pipeline to Close the Middle-Skills Employment Gap," Accenture, 2014.

Difficulties Filling Middle-Skills Positions (Continued)

- Interviews and surveys suggest a variety of reasons that employers ask for more education than the job requires, including:
 - The need for soft skills such as leadership, reliability, and communication skills
 - An indication that the worker can advance, thanks to technical savvy, problem-solving skills, and adaptability
- Among employers hiring candidates with a college degree for jobs that once required only a high school diploma, some attribute the shift to an evolution of necessary skills.

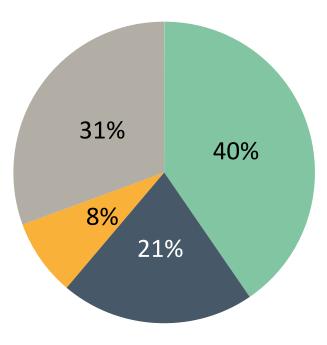
Source: Fuller, Joseph B., Jennifer Burrowes, Manjari Raman, Dan Restuccia, and Alexis Young. "Bridge the Gap: Rebuilding America's Middle Skills," Report, U.S. Competitiveness Project, Accenture, Burning Glass Technologies, and Harvard Business School, November 2014; CareerBuilder. "More Than 1 In 4 Employers Are Hiring Employees with Master's Degrees for Positions That Had Been Primarily Held by Those with Four-Year Degrees in the Past, According to New CareerBuilder Survey," CareerBuilder.com, March 17, 2016.

Implications for Employers

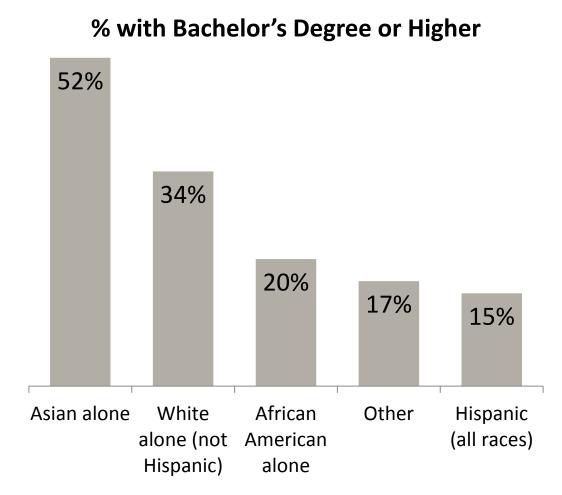
- Research has shown that, for some middle-skills jobs, asking for a bachelor's degree lengthens the time required to fill open positions.
- Sixty-nine percent of HR executives surveyed report that difficulties filling middle-skills jobs affect company performance.
- Delays in filling job openings can lead to:
 - Lower morale and motivation for current workers
 - Unfinished, delayed, or lower-quality work
 - Declines in customer service
 - Lost revenue
 - Higher turnover

Sources: Fuller, Joseph B., Jennifer Burrowes, Manjari Raman, Dan Restuccia, and Alexis Young. "Bridge the Gap: Rebuilding America's Middle Skills," Report, U.S. Competitiveness Project, Accenture, Burning Glass Technologies, and Harvard Business School, November 2014; Chanmugam, Ravi, David Smith, and Laila Worrell. "Finding the Middle: How Businesses Can Manage the Talent Pipeline to Close the Middle-Skills Employment Gap," Accenture, 2014; CareerBuilder. "Companies Losing Money to the Skills Gap, According to CareerBuilder Study," CareerBuilder.com, March 6, 2014.

Implications for Prospective Workers



- High school diploma or less
- Some college, no degree
- Associate's degree
- Bachelor's degree or higher



Notes: Estimates apply to population 25 years and older. Racial groups other than white alone include those of Hispanic origin. Source: U.S. Census Bureau, 2015 American Community Survey 1-Year Estimates, Table S1501.

Strategies to Improve the Status Quo

- Fostering partnerships between industries, educators, and training providers to clarify—and deliver—the hard and soft skills that businesses need
- Forecasting skills requirements
- Expanding internship and apprenticeship programs
- Investing in entry-level workers
- Developing job descriptions based on skills and competencies rather than on educational attainment

Source: Fuller, Joseph B., Jennifer Burrowes, Manjari Raman, Dan Restuccia, and Alexis Young. "Bridge the Gap: Rebuilding America's Middle Skills," Report, U.S. Competitiveness Project, Accenture, Burning Glass Technologies, and Harvard Business School, November 2014.

Introduction to TechHire

Papia Debroy and Sally Smyth

Introduction to TechHire Washington, DC

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What Is TechHire?

TechHire is Opportunity@Work's first national initiative in cities, states, and rural areas to "recode" the American economy by helping employers find outstanding tech talent, and overlooked job seekers get the training and connections they need to start successful technical careers.





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TECHHIRE IS A PLACE-BASED INITIATIVE WITH 70+ REGIONS ... AND GROWING



TechHire Year One Progress

TechHire "rewires" the technology job market, education, training, and support ecosystem for growth and inclusion in 71 U.S. communities (and growing).

4,015
PLACEMENTS

Individuals placed

into information

technology (IT)

jobs or internships

across the

TechHire network

Individuals trained in IT skills in the TechHire network

6,062

TRAINED

1300+ EMPLOYERS

Employers
committed to
interviewing
TechHire candidates,
sharing demand
needs, and providing
feedback

237
PARTNERS

Local community partners engaged in supporting TechHire

193 EDUCATORS

Education and training providers committed to providing accelerated training aligned with demand

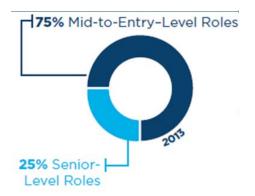
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MARKETPLACE

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Growing Gap in Tech Roles Is Pain Point for Employers

By 2020, there will be **1 million more IT Jobs** than computer science students in the United States. 1.4 million computing jobs 400,000 computer science students www.techhire.org 2020 2011



Sample In-Demand Tech Jobs that Don't Require a Four-Year Degree:

- User Experience Design
- Data Analytics
- Ad Operations
- Marketing Technology
- Software Development
- Applications
- Development
- Network Administration

Note: "Computing jobs" refers to jobs in the disciplines of computer engineering, computer science, information systems, IT, software engineering, and related fields. Source: U.S. Bureau of Labor Statistics

Pilot Program to Vet Candidates

TECHHIRE VALIDATION TOOL

Candidates are vetted by TechHire **before** they are available for employers' consideration.

1. CANDIDATES **APPLY**

Candidate submits an initial survey specifying skill sets, past project information, and work history.

2. TECHNICAL **ASSESSMENT** Candidate takes an online assessment, evaluating fundamental coding skills in the programming language of the candidate's choice.

3. BEHAVIORAL **INTERVIEW**

Candidate is interviewed and evaluated on soft skills by volunteer HR staff and hiring managers.

4. EMPLOYER **REVIEW**

Profiles of successful candidates are available to employers for review.



< TECH/HIRE>



66

The partnership with TechHire helped us reach candidates that we had not found through our traditional recruiting methods."

— Joe Carey, GE Digital



TechHire Benefits to Employers

REDUCED DIFFICULTY IN FILLING ROLES

Increased talent supply reduces length of vacancy and reduces intensity of competition for hires.

IMPROVED RETENTION

Candidates sourced from nontraditional talent pools report higher levels of loyalty to companies.

REDUCED COST

- Sourcing from local talent pools lowers recruiting costs.
- There is an advantage over traditional university recruiting in immediately available candidates.

IMPROVED WORKFORCE **DIVERSITY**

- Sourcing from a diverse pool improves workforce diversity.
- Diverse teams show higher percentage of collaboration and higher rates of retention.

Development of Solutions for New Roles

- 1. QA Tester
- 2. Network Architect
- 3. Information Security Analyst
- 4. Systems Engineer
- 5. Database Administrator
- 6. Business Intelligence Analyst
- 7. Computer Support Specialist
- 8. Systems Analyst
- 9. Data Scientist

Development of Technical Assessment

Development of Behavioral Interview

Recruitment and Training of Volunteer Network

Deployment of Product

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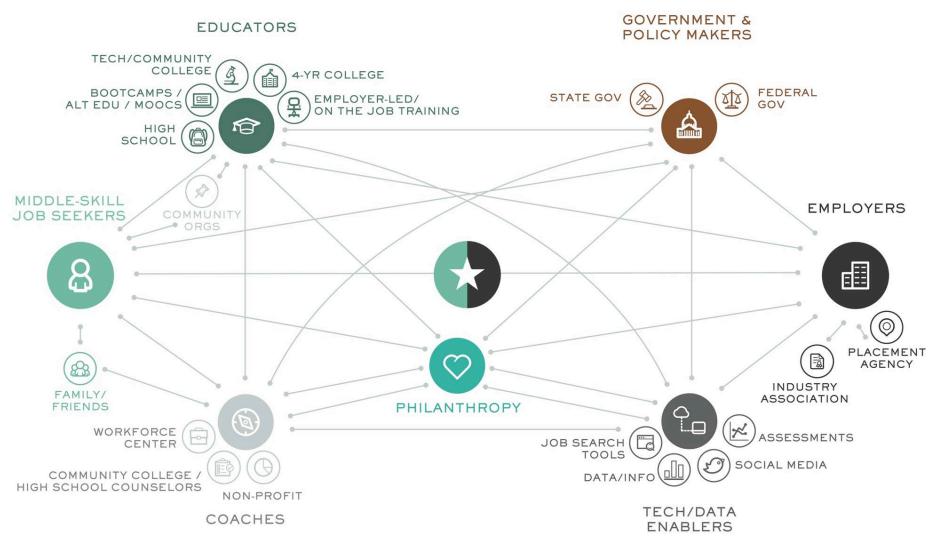
Skillful Overview

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Vision

Create a labor market built on skills, in which there are many pathways to career success for middle-skills jobseekers

Ecosystem Stakeholders



What Success Looks Like

Skillful measures of success based on our ability to help create an inclusive, skills-based labor market

Individual getting into a better pathway

Middle-skills individual gets a job that offers an attractive career path and wage growth, e.g., in our target industries.



Individual pursuing training that leads to better pathway Middle-skills individual pursues and completes a training program that leads to an attractive career path and wage growth, e.g., in our target industries.



Employer implementing skills-based practices

Employer enrolls middle-skills individual in a skills-based training program or hires middle-skills individual with a skills-based job description.

Skills-Based Hiring

A shift to skills-based hiring requires changes in a few core practices

Hiring Process Overview

Traditional Hiring

Focus on college degrees and specific experiences in job postings, used as proxies for needed skills



Skills-Based Hiring

Focus on the needed skills regardless of how they were gained (e.g., college, military, previous employment, alternative education)



A casual distinction between required and preferred skills is common



A rigorous distinction between required and preferred skills

- Upgrade recruiting
- Reduce costs
- Improve productivity

A relatively disconnected hiring through onboarding process, with each step taking place largely independent of the others



An integrated, end-to-end hiring through onboarding process built on and informed by skills

Employer Benefits

There are three major employer benefits of adopting skills-based practices

Upgrade Recruiting

- Improve the quantity and quality of applicants
- Enhance the recruiting through the hiring process

Improve Productivity

- Upgrade the employee on-boarding process
- Enable better employee training

Reduce Costs

- Reduce direct recruiting, on-boarding, and overtime costs
- Reduce the opportunity cost created by orders going unfilled due to too many open positions
- Reduce turnover by hiring staff with the right skills

Skills-Based Practices

Six key action items employers can follow to adopt and deploy skills-based practices

- 1 Create a collaborative, cross-functional recruiting culture focused on skills-based hiring
- Reformat job postings and descriptions to be skills-based
- 3 Enhance the recruiting through the hiring process to focus on candidates' skills
- 4 Deploy a skills-based onboarding process for new hires
- Create and define clear career paths within the organization based on the skills required for each role
- Develop company talent by investing in skills-focused training programs

Skillful Has a Number of Employer Resources

1 Career Path Examples

4

Implementation Guides



Occupational Deep Dives







2 Engagement Materials



Job Posting Templates



Skillful Research







Hiring Tools



Job Seeker Journeys



Skillful Workshop Guides







Thank You to Our Colorado Partners































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- Experiences and Perspectives of Young Workers
- Tuesday, April 25, 2017
- 2–3 p.m. CT/3–4 p.m. ET
- Presenters:
 - Heidi Kaplan, Senior CD Analyst,
 Board of Governors of the Federal Reserve System
 - Ofronama Biu, Senior Research Associate,
 The NYC Labor Market Information Service (NYCLMIS),
 Center for Urban Research
 - Amy Blair, Economic Opportunities Program,
 Aspen Institute Workforce Strategies Initiative

Questions? You have two options to ask questions today:

- 1. Email us at: communities@stls.frb.org
- 2. Type your question into the chat box of the webinar

Wrap-Up/Closing

Thank you to today's presenters and to all participants for joining this session.

Next steps:

- All session materials are available on our website, and in the next few days we will be posting an audio file of today's session.
- If you have topical suggestions for future sessions or any questions about this program, please feel free to contact us at communities@stls.frb.org.
- Information about future sessions will be posted on our website, along with archived materials from past sessions: www.stlouisfed.org/connectingcommunities/.

Related Resources



- In connection with this session, you can find a variety of additional resources on this topic at www.fedcommunities.org.
- It provides an array of practical resources to help you in your role as a CD professional, whether your work involves supporting people, places, the policy and practice of CD, or small business development.