



FOUNDATIONAL SKILLS IN THE SERVICE SECTOR

Understanding and addressing the impact of limited math, reading, and technology proficiency on workers and employers

BY AMANDA BERGSON-SHILCOCK



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EXECUTIVE SUMMARY

INTRODUCTION

Across the United States, millions of men and women with limited reading, math, or digital problem-solving skills are holding down jobs across the service sector. Employed in retail shops and restaurants, hotels and hospitals, these workers not only help fuel the country's economy — they keep daily life in America humming smoothly along.

In the course of their jobs, these workers often need to read vital directions, follow safety protocols, calculate prices, supervise colleagues, and oversee budgets. All of these tasks are made dramatically more challenging for workers who don't have strong literacy or numeracy skills. Many resort to creative work-arounds in an attempt to compensate for their lack of skills, but others struggle in silence. Their skill gaps carry heavy consequences for themselves, their co-workers, their employers, and our society as a whole.

This report offers a fresh analysis of rigorous international data, painting a picture of the approximately 20 million American workers employed in key service-sector industries who lack foundational skills.¹ It highlights promising practices and interventions used by U.S. employers to help their workers to upskill. And it details key policy levers that can foster economic mobility for these workers.

Approximately forty-eight million Americans, or 32% of the U.S. workforce, are employed in the service sector industries of retail; health and social assistance; and leisure and hospitality.² However, low wages, unpredictable schedules, and limited opportunities for promotion can constrain the ability of workers to advance within the service sector.³ Lack of opportunity for advancement can affect workers' decisions about whether to stay in the sector over the long term. Conversely, workers who *do* see their skill gains rewarded with opportunities to advance in their chosen field have a clear incentive to stay in the sector.

Data in this report is drawn from the Organization for Economic Cooperation and Development (OECD) Survey of Adult Skills, known as the PIAAC.⁴ Within that dataset, National Skills Coalition's (NSC) analysis focuses on U.S. adults ages 16-64, who are employed, and have limited basic skills in reading, math, or technology.⁵

FINDINGS

LOW SKILLS ARE PREVALENT AMONG SERVICE-SECTOR WORKERS

Overall, 62% of service-sector workers in the target occupational categories have limited literacy skills, and an even higher 74% have limited numeracy skills. A similar 73% lack digital problem-solving skills, not including the workers who declined even to take the technology portion of the test.⁶ These findings are a stark illustration of a broad swath of the American workforce that is functioning without critical skill sets necessary to their jobs.

Understanding the demographic and other key characteristics of service-sector workers with low basic skills⁷ can help inform strategies for aiding these workers to build skills and achieve economic mobility. NSC found that:

THE HIGH PRICE OF LOW SKILLS:

> One worker had a good job for a hotel chain. She used ingenious ways to get and maintain her job without exposing her lack of literacy. She was a good worker and was offered a promotion to supervisor, but she had to turn it down because it would have required literacy.

— *Adult educator*

Workers are demographically diverse, and most are adults. A majority (61%) of service sector workers with low skills are women. Nearly half (46%) are white, 20% are black, 26% Hispanic, 5% Asian/Pacific Islander, and 4% report their race or ethnicity as other. A quarter (25%) are immigrants. Twenty-nine percent do not speak English as their first language.

Contrary to the image of service workers as teens and young adults, a full three-quarters of those with low basic skills are over the age of 25, including 52% who are age 35 or older. Most are parents. Nearly two-thirds (64%) of service-sector workers with low literacy are parents.

A significant number work for small- and mid-sized employers. The overwhelming majority of workers with low skills (84%) work at locations with fewer than 250 employees, including 56% who work at locations with fewer than 50 employees. While some of these are local worksites that are part of a larger company, many others are not: Overall, 30% of workers with low skills are employed in small to mid-sized businesses.⁸

A strong majority of workers have been with their employer for at least 3 years. An important finding contradicted the common assumption that service-sector positions are short-term jobs. Rather, a full 58% of workers have been with their current employer for at least three years. This includes 36% — more than 1 in 3 workers — who have been with their employer for at least *six* years.

SERVICE SECTOR WORKERS WITH LOW BASIC SKILLS: ON THE JOB

NSC found that large majorities of workers are required to use reading, writing, math, and digital skills on the job — regardless of their ability to successfully complete such tasks. This issue functions as an invisible drag on productivity and worker mobility.

Employees who cannot fully carry out their own job duties depend on informal help from co-workers, spend substantial time and effort hiding or compensating for their skill gaps, and avoid opportunities to advance out of fear their secret will be discovered. Companies that depend on these workers to comply with personnel rules, safety regulations, and other crucial policies and practices may find themselves contending with the spillover consequences of such skill gaps.

In particular, NSC found that:

- Workers are overwhelmingly called upon to **read directions or instructions** in order to do their jobs.

Nearly three-quarters (73%) of workers with low skills say they need to read directions as part of their current job.

- More than half (59%) of workers say they must regularly **read letters, memos or e-mails** as part of their job.
- One in three (36%) are regularly called upon to **write** letters, memos, and e-mails

Other findings are highlighted in the chart on page 3.

NSC also found that workers are:

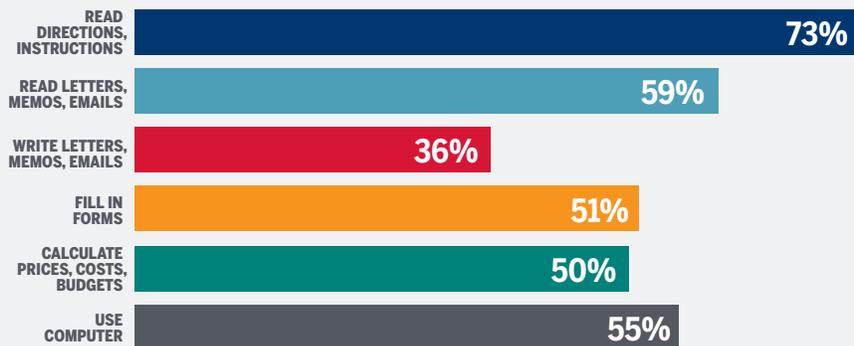
- **Regularly learning and teaching new things on the job.** More than half (55%) of workers are actively engaged in learning new things in their current jobs, and 38% are teaching others on the job.
- **Often supervising other people.** Nearly one in four workers (23%) with low skills are supervisors, and half of those are overseeing 6 or more employees.

SERVICE SECTOR WORKERS WITH LOW BASIC SKILLS: THEIR EFFORTS TO UPSKILL

A robust proportion of workers were actively pursuing education and training opportunities. Specifically:

- **One in 10 workers had participated in a basic skills class in the previous year.** Workers were asked about their participation in adult education classes that were specifically focused on improving their reading, writing, and math skills, or on helping them attain high school equivalency.
- **Many are actively engaged in obtaining credentials.** A full 27% of workers had pursued a formal degree or certificate in the past year, while at least 39% had engaged in other types of educational opportunities during the same time period. (Note: due to the format of the dataset from which these numbers were drawn, they contain an unknown amount of overlap.)
- **Workers who pursue additional education usually do so for job-related reasons.** Fully 69% of those in degree or certificate programs said that they were doing so for job-related reasons. It is unclear whether respondents were thinking of their current job or their future employment prospects more broadly when they answered. However, respondents were also asked how useful their studies were for the job they had at the time. One-third (34%) said they were not useful at all; 17% said somewhat useful; 10% moderately useful; and 39% said very useful. These two findings taken together suggest that at least some workers who are pursuing formal education expect that their studies will be more useful for a *future* job than their current position.

DESPITE THEIR SKILL GAPS, MANY WORKERS REGULARLY NEED TO USE READING, WRITING, AND MATH ON THE JOB



SERVICE SECTOR WORKERS WITH LOW BASIC SKILLS: BARRIERS TO UPSKILLING

NSC’s analysis also looked at factors that might prevent workers from being able to access upskilling opportunities. The specific findings were:

- **Employers are more likely to financially support workers’ participation in informal training than in formal degree or certificate programs.** A small minority (16%) of workers who are pursuing formal degrees or certificates reported that their employer paid for some or all of the tuition costs, compared to 59% of those participating in other types of education and training opportunities.⁹
- **Logistical barriers make it hard for workers to participate in learning opportunities.** Nearly 1 in 3 workers (31%) said they would have liked to participate (or participate more) in learning opportunities over the past year, but had not been able to. Lack of time and money were the overwhelming reasons given, including being too busy at work, the educational program being offered at an inconvenient time, having limited time for education due to childcare or family responsibilities, and being unable to afford the educational opportunity they wanted to pursue.

PUTTING IT ALL TOGETHER: OPPORTUNITIES FOR EMPLOYERS AND POLICYMAKERS

As NSC’s data analysis makes clear, skill gaps among U.S. service-sector workers are a significant challenge that often prevents people from achieving their full potential. Unlocking this potential will benefit individual workers as

well as the businesses that employ them and the wider U.S. economy. Business leaders, policymakers, and other advocates have the power to unleash that potential by implementing specific, proven strategies to help workers upskill and companies succeed in a competitive economy.

Employers who are interested in helping their employees build skills and advance in their companies have a range of interventions available to them. Below are proven models for worker upskilling, and examples of companies that are implementing them.

PARTNERSHIPS: ESSENTIAL FOR REACHING A MAJORITY OF SERVICE SECTOR WORKERS

Given the substantial number of service-sector workers who are employed by small and mid-sized businesses, it is important to note that company size and internal capacity are significant factors in determining what kind of upskilling intervention is realistic. Small companies often have limited capacity to pursue more ambitious interventions.

That’s why partnerships with other firms in an industry and with education and training providers are essential. For example, companies can:

1. **Participate in sector partnerships to identify talent gaps and meet training needs.** For small- and mid-sized companies, “sector partnerships”, also known as industry partnerships, can provide an effective way to aggregate talent demand within an industry.
2. **Serve as the employer partner for registered apprenticeship or pre-apprenticeship programs.** Apprenticeship models provide crucial “earn while you

learn” opportunities for people to build skills while employed. While there are hundreds of registered apprenticeships in the U.S., the use of this model in the service sector is relatively recent.

3. Partner with training organizations and community colleges to help workers upskill.

Examples are highlighted below.

- **Vocational English language classes:** Numerous companies are providing opportunities for their employees to learn English that is customized for their workplace.
- **Foundational credentials such as high school equivalency:** Some companies have partnered with providers such as Cengage Learning, whose Career Online High School allows workers to earn a high school diploma and career certificates via online, self-paced classes.¹⁰
- **Industry-informed training:** Employers can provide timely and relevant feedback as community colleges are developing new training programs. One such example comes from Roanoke, VA, where employer advisors played an important role in informing the curriculum content and overall design for a Microsoft Office Specialist (MOS) for Healthcare and Customer Service training program.
- **Integrated Education and Training models:** First developed in Washington State via a program known as I-BEST,¹¹ Integrated Education and Training (IET) models enable workers to build basic skills such as reading or math while simultaneously receiving instruction in occupational or industry-specific skills.¹²
- **“Blended” online/classroom learning:** For workers who cannot easily attend classes in person, online or distance learning can seem like an appealing option. Research suggests that for such learning to be effective, it should be coupled with some type of in-person support. Programs such as [English Innovations](#) accomplish this.
- **Industry certifications:** Businesses can increase their economic competitiveness by facilitating their workers’ ability to obtain in-demand credentials that will allow them to meet customer demands. For example, the increasing popularity of LEED-certified environmentally friendly office buildings in California has created a demand for building-services companies whose workers are equipped to meet stringent standards for maintaining those buildings.

GOING IT ALONE: IN-HOUSE, ON-SITE UPSKILLING

Companies large enough to have a critical mass of workers who could benefit from upskilling can establish learning opportunities at the work site. Typically, such classes are offered during the work day or immediately before or after a shift. Companies often provide paid release time to maximize worker participation. Curriculum content is designed based on the company’s identified needs, and worker progress is measured through a combination of standardized assessments and customized tools.

TAKING UPSKILLING TO SCALE: POLICY RECOMMENDATIONS

While many of the employer practices described above can be implemented on a small scale by individual companies, facilitating widespread economic mobility for service-sector workers will require advancing proven policies at the state and federal level. Below, we highlight select opportunities for action. For more detailed recommendations, please refer to our full report.

FEDERAL POLICIES

- **Make sector partnerships America’s way of doing business.** Sector partnerships serve a vital function by helping smaller employers aggregate the demand for talent, establish a talent pipeline, and identify current and future skill needs. Policymakers can encourage communities to implement this approach via 1) better alignment between existing federal upskilling investments and local, industry-led partnerships; and/or 2) further investments to enable additional communities to launch their own partnerships, particularly in the service sector.
- **Fully fund federal investments in adult education.** The Adult Education and Family Literacy Act (Title II of WIOA) provides crucial federal support for adult basic education, high school equivalency, and English language programs. At a minimum, policymakers should fund Title II at its full authorized level.
- **Support the expansion of work-based learning opportunities.** Apprenticeships and pre-apprenticeships can be effective on-ramps to economic mobility. However, there are relatively few work-based learning opportunities in the service sector. Policymakers should remedy this by supporting the expansion of work-based learning opportunities to new industries and workers in the service sector.

- **Incentivize private investment in frontline workers with basic skill needs.** Employers play an important role in helping entry-level workers upskill. Congress should restructure the \$1 billion Work Opportunity Tax Credit (WOTC) as the Work-Based Learning Opportunity Tax Credit. This program would reward companies that hire people exiting public benefits or those with low basic skills via a tax credit that partially offsets costs incurred by businesses.

STATE POLICIES

- **Fund and support industry sector partnerships.** Regardless of how quickly federal policy recommendations are adopted, *state* policymakers and advocates can support the development of partnerships in their communities. States can support sector partnerships by implementing robust policies that include funding, technical assistance, and program initiatives.¹³
- **Advance effective Integrated Education and Training (IET) models.** Policymakers can facilitate the development and implementation of high-quality IET models by providing state funding, launching a programmatic initiative, offering technical assistance, or setting a requirement that adult education providers offer IET.¹⁴
- **Support job-driven financial aid policies.** States can enact policies that provide “mortar” to fill in the cracks between federal financial aid policies. Such policies make it possible for part-time students, those in short-term programs, and working learners to enroll in middle-skill training programs that can help them achieve economic mobility.

NOTES

- 1 This number is drawn from our analysis of data from the Survey of Adult Skills. See “Where does our data come from?” below for additional information about this data source.
- 2 These numbers are drawn from the U.S. Bureau of Labor Statistics, 2014. Note that the BLS uses a very expansive definition of the service sector overall; these numbers reflect only the sub-sectors listed in the narrative above. View source data: www.bls.gov/emp/ep_table_201.htm
- 3 See, e.g., Profiles of the Retail Workforce and Retail Action Project (Aspen Institute): www.aspenwsi.org/wordpress/wp-content/uploads/Profiles-of-the-Retail-Workforce-and-the-Retail-Action-Project.pdf
- 4 Learn more about the Program for the International Assessment of Adult Competencies (PIAAC) at www.piaacgateway.com.

- 5 Our analysis looks in particular at individuals who are working in the service sector, encompassing the three sub-sectors of retail; accommodation and food service; and health and social work. The analysis is focused on individuals who are working in the first, second, or third level of PIAAC’s four occupational categories, excluding those at the fourth and highest level. Finally, we focused on individuals who scored at the lower levels of PIAAC’s assessments: Level 2 or below for literacy; Level 2 or below for numeracy, and Level 1 or below for digital problem-solving skills, known in the PIAAC as “problem-solving in technology-rich environments.”
- 6 A full 1 in 5 PIAAC respondents (20%) did not even participate in the portion of the test that assessed their technology skills, so the 73% number above is effectively an understatement. There are three potential reasons for nonparticipation: lack of any computer experience; outright refusal to take the assessment; and failure to pass the initial computer skills screening test (which requires successfully completing four of six simple tasks, such as using a mouse and highlighting text on the screen). Respondents’ reasons for not participating in the technology portion of the PIAAC were evenly divided among these three categories. Note: The population for this variable does not include those who did not have valid assessment scores for any domain due to literacy-related non-response (inability to speak or read the language of the assessment, difficulty reading or writing, or learning or mental disabilities) and of course does not include individuals with the highest-skill occupations, as explained earlier in this report.
- 7 Unless otherwise noted, all statistics in this report refer to service-sector workers with low literacy skills. In most cases, there were no statistically significant differences between these individuals and those with low numeracy or digital problem-solving skills.
- 8 In this case, small- to mid-sized refers to companies of between 1 and 250 employees. Typically, this definition would be broader, including companies of up to 999 employees, but unfortunately the PIAAC data on individuals employed in these larger companies was not reliable enough to include in this analysis due to higher margins of error.
- 9 The exact question asked was: Did an employer or prospective employer pay for tuition or registration, exam fees, expenses for books or other costs associated with your studying for this degree [or participation in this activity]?
- 10 Learn more about COHS and its certificates: <http://www.careeronlinehs.org/program/#tab-2>
- 11 Learn more about I-BEST: www.sbctc.edu/colleges-staff/programs-services/i-best/
- 12 See, e.g., How I-BEST Works: Findings From a Field Study of Washington State’s Integrated Basic Education and Skills Training Program (Community College Research Center, 2011), viewable at: <http://ccrc.tc.columbia.edu/publications/how-i-best-works.html>
- 13 Learn more in NSC’s Sector Partnerships Policy Toolkit, available at: www.nationalskillscoalition.org/resources/publications/file/Final-Sector-Partnership-Policy-Toolkit-1.pdf
- 14 Learn more about state IET policies in NSC’s Integrated Education and Training Toolkit, available at www.nationalskillscoalition.org/state-policy/skills-equity



INTRODUCTION

Across the United States, millions of men and women with limited reading, math, or digital problem solving skills are holding down jobs across the service sector. Employed in retail shops and restaurants, hotels and hospitals, these workers not only help fuel the country's economy — they keep daily life in America humming smoothly along.

When caring for elders, workers often need to read vital directions regarding medication or treatment plans. When making breakfast for sleepy-eyed office workers, workers must follow food safety protocols and understand temperature requirements. And when helping to ensure that shoppers have access to vital goods, these workers must calculate prices, supervise colleagues, and oversee budgets.

All of these tasks are made dramatically more challenging for people who don't have strong literacy or numeracy skills. Many resort to creative work-arounds in an attempt to compensate for their lack of skills, but others struggle in silence. Their skill gaps carry heavy consequences for themselves, their co-workers, their employers, and society as a whole.

This report offers a fresh analysis of rigorous international data, and paints a picture of the approximately twenty million workers employed in key service sector industries who lack key foundational skills.¹⁵ It highlights promising practices and interventions used by U.S. employers to help their workers to upskill. And it details key policy levers that can foster economic mobility for these workers.

THE ROLE OF THE SERVICE SECTOR IN THE US ECONOMY

Approximately 48 million Americans, or 32% of the U.S. workforce, are employed in the service sector industries of retail; health and social assistance; and leisure and hospitality.¹⁶ The relatively low barriers to entry and plentiful availability of service sector jobs make them appealing “first jobs” for many workers.

However, low wages, unpredictable schedules, and limited opportunities for promotion can constrain the ability of workers to advance within the service sector.¹⁷ For example, eight out of the ten lowest-paid occupations in the U.S. are in food service or retail.¹⁸ Lack of opportunity for advancement can affect workers' decisions about whether to stay in the sector over the long term. Conversely, workers who **do** see their skill gains rewarded with opportunities to advance in their chosen field have a clear incentive to stay in the sector.

WHERE DOES THE DATA COME FROM?

Data in this report is drawn from the Organization for Economic Cooperation and Development (OECD) Survey of Adult Skills, known as the PIAAC.¹⁹ Within that dataset, NSC's analysis focuses on U.S. adults ages sixteen through sixty-four, who are employed, and have limited basic skills in reading, math, or technology.

NSC's analysis looks at individuals who are working in the service sector, encompassing the three sub-sectors of retail; accommodation and food service; and health and social work. The analysis is focused on individuals who are working in the first, second, or third level of PIAAC's four occupational categories, excluding those at the fourth and highest level.²⁰

Finally, NSC's analysis focused in particular on individuals who scored at the lower levels²¹ of PIAAC's assessments: Level 2 or below for literacy; Level 2 or below for numeracy, and Level 1 or below for digital problem solving skills, known in the PIAAC as "problem solving in technology rich environments."²²

NSC also compared service sector workers with low basic skills to workers with the same characteristics across *all* industry categories. Interestingly, there were relatively few differences between the two groups. This suggests that the findings have implications for stakeholders interested in these issues across a variety of industry sectors.

More detailed information about the analysis can be found in the methodology section.

WHO IS MISSING FROM THIS DATASET?

Individuals who speak neither Spanish nor English very well are not included in the analysis. In the United States, the background questionnaire for PIAAC was administered in English and Spanish *only*. Thus, individuals who do not speak one of these two languages are not included in this dataset. There are approximately 6.5 million US adults ages eighteen through sixty five who fall into this category.²³

The PIAAC data consists of two primary types of information: a background questionnaire that was administered to all survey participants; and results from the literacy, numeracy, and digital problem solving skills assessments. NSC relied on a combination of both types of data for this report.

FINDINGS

LOW SKILLS ARE PREVALENT AMONG SERVICE SECTOR WORKERS.

Overall, 62% of service sector workers in the target occupational categories have limited literacy skills, and an even higher 74% have limited numeracy skills. A similar 73% lack digital problem solving skills, not including the workers who declined even to take the technology portion of the test.²⁴ These findings are a stark illustration of a broad swath of the American workforce that is functioning without critical skill sets necessary to their jobs.

This finding was overwhelmingly confirmed by key informants interviewed for this report, many of whom shared specific examples of how limited skills can hamper workers' ability to successfully do their jobs:

- Limited literacy impacts home care aides' ability to read directions and write reports in client care. Often, poor language skills (even for native English speakers) affect their understanding of verbal directions or their communication with supervisors, which can lead to job loss.
- Problems understanding directives from supervisors can result in incomplete or incorrect actions by the employee. For example: a janitor was told to wash animal cages using one kind of cleaner, which has a similar sounding name to another cleaner. The wrong cleaner was used, resulting in sick animals.
- Limited English skills mean that housekeepers at a hotel can't answer guests' questions, can't understand supervisors' directions, and don't know how to ask questions to get clarification.

In some cases, lack of technology-related skills compound the challenge of limited literacy. One key informant noted: *"The increased use of electronic job applications makes it difficult for those with low literacy skills to get a job."*

Many individuals work hard to mask their lack of reading or math skills so they can stay employed. Memorization of key signs or symbols is a common technique. Some workers use

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> One worker had a good job for a hotel chain. She used ingenious ways to get and maintain her job without exposing her lack of literacy. She was a good worker and was offered a promotion to supervisor, but she had to turn it down because it would have required literacy.

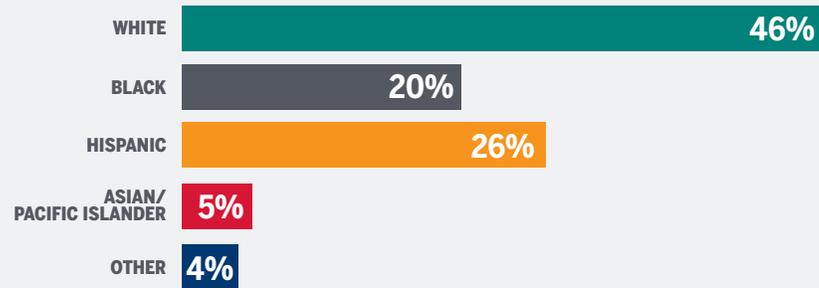
— Adult educator

LOW SKILLS ARE PREVALENT AMONG SERVICE WORKERS



*Note: Number does not include the 20% of individuals who did not take the digital portion of the test.

A PLURALITY OF WORKERS WITH LOW SKILLS ARE WHITE



stratagems such as saying they “forgot their glasses” or want to take a memo home “to read tonight,” knowing that they can rely on a spouse or child to help them decipher the meaning.

One key informant shared a story of a man who had memorized the locations of multiple work sites across a major metropolitan area, despite not being able to read maps or signs. Another told us about a non-reader who “*had learned thousands of words by sight.*” Through this compensating mechanism, as well as knowing the vocabulary and routines of the workplace, the worker “*was able to fool most people, most of the time.*”

Other coping mechanisms used by workers include creating their own tools or props, such as a mini dictionary with translations for common English workplace terms in their home language.

SERVICE SECTOR WORKERS WITH LOW BASIC SKILLS: A PROFILE

Understanding the demographic and other key characteristics of service sector workers with low basic skills²⁵ can help inform strategies for aiding these workers to build skills and achieve economic mobility. NSC found that:

Workers are demographically diverse, and most are adults. A majority (61%) of service sector workers with low skills are women. Nearly half (46%) are white, 20% are black, 26% Hispanic, 5% Asian/Pacific Islander, and 4% report their race or ethnicity as other. A quarter (25%) are immigrants.

Contrary to the image of service workers as teens and young adults, three-quarters of those with low basic skills are over the age of twenty-five, including 52% who are age thirty-five or older.

Age was one of the few variables in which we saw statistically significant differences *within* the three sub-sectors that comprise the service sector. As shown in Table 1, the youngest workers (ages sixteen through twenty-four) are three times as prevalent in the accommodation and food service sub-sector, compared to health and social work (39% to 13%). Continuing this trend, the health and social work sub-sector has a higher percentage of mature workers ages forty-five through sixty-four compared to either of the other subsectors (28% compared to 16% for retail and 15% for accommodation and food service).

MOST LOW-SKILLED WORKERS HAVE AT LEAST A HIGH SCHOOL DIPLOMA OR EQUIVALENT

- LESS THAN HIGH SCHOOL
- HIGH SCHOOL DIPLOMA OR EQUIVALENT
- ASSOCIATE'S DEGREE
- BACHELOR'S DEGREE
- GRADUATE DEGREE

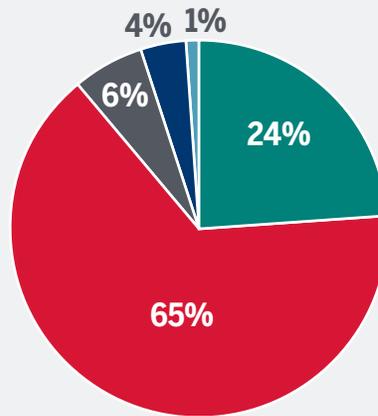


Table 1: Age Distribution of Workers with Low Basic Skills by Sub-Sector

	Overall service sector	Retail	Accommodation & food service	Health & social work
Ages 16-24	24%	23%	39%	13%
Ages 25-34	23%	22%	27%	20%
Ages 35-44	18%	17%	13%	25%
Ages 45-54	19%	16%	15%	28%
Ages 55-64	15%	22%	6%	14%
Total (may not sum to 100 due to rounding)	100%	100%	100%	100%

Three-quarters were born in the United States. A large majority (75%) of workers with low skills are native born Americans. This finding affirms the need for a well-rounded adult basic education component in interventions that seek to help workers advance.

Notably, while immigrant workers are over-represented in the service sector (25%) compared to the workforce overall (17%),²⁶ they are **not** especially likely to have limited skills in two out of the three domains NSC studied: Immigrants comprise a virtually-identical 26% of service workers who have low literacy or numeracy skills.

The picture is quite different when it comes to digital problem solving skills, where two data points come together to suggest an important gap. First, immigrants were three times less likely to participate in the digital problem solving portion of the PIAAC assessment compared to their native born peers (48% of immigrant workers compared to 13% of native born). Second, among those workers who **did** take the digital problem solving test, immigrants were more likely to do well, comprising just 15% of those with low scores. This is perhaps not surprising given how many immigrants did not participate; one can assume that those who agreed to take the computer portion of the test were more confident in their skills.

Many have completed their K-12 education. The data provide painful evidence that for many workers, having a high school credential does not translate into having adequate basic skills. More than two-thirds of workers with low skills have completed high school or beyond: A full 65% have a high school diploma or equivalent, 6% have an associate's degree, 4% have a bachelor's degree, and 1% have a graduate degree. Only a quarter (24%) of these workers did not finish high school.²⁷

While there are a variety of potential explanations for this finding, it is important to recall that virtually half (47%) of low-skilled service workers are younger than thirty-five. Thus, the

ENGLISH ON THE JOB:

- > Many key informants related examples of how workers' limited language skills prevented them from advancing on the job. One said: "Spoken English tends to be a barrier to obtaining positions with more customer interaction.... Generally [workers] do tasks that don't involve much speaking to customers. One of my students works at a fast food restaurant but is usually in the back making sandwiches. Another worked at [a major retailer] but only got to stock shelves."
- > Another key informant explained that lack of English "limited people to being back-of-house restaurant workers rather than higher pay front-of-house positions."
- > And another informant reeled off a list of challenges related to maintaining employment and accessing upskilling opportunities: "Lack of English has led to workers' inability to negotiate schedules in order to persist in English classes, inability to access better job opportunities (from being able to create a resume, engage in an online job search, do an interview), difficulties following directions on the job, difficulties in filling out a timesheet correctly, and more."

NEARLY TWO OUT OF THREE LOW-SKILLED WORKERS HAVE CHILDREN



finding does *not* seem to simply reflect individuals who have been away from school a long time and may have seen their skills atrophy.

They are not especially likely to have learning disabilities. While it may seem logical that workers with low skills would be more likely to have a learning disability than the general population, it is not clear that this is actually the case. Our analysis shows that just over 10% of workers with low basic skills have been diagnosed or identified as having a learning disability. In comparison, 5% of current K-12 public school students in the US are being served by the Individuals with Disabilities Education Act due to a specific learning disability,²⁸ while National Center for Learning Disabilities estimates that as many as another 15% of students may have "unidentified and unaddressed learning and attention issues."²⁹

Regardless, it is clear that while some adult learners certainly require support to address diagnosed or undiagnosed learning disabilities, such disabilities alone cannot account for the large number of service sector workers with basic skills gaps.

Most are parents. Crucially, the issue of low basic skills is not only a factor for workers and their employers, but also has powerful implications for families and our society more broadly. Nearly two-thirds (64%) of service sector workers with low literacy are parents.

Extensive research has documented the importance of parental literacy on the educational and life outcomes of their children.³⁰ Parents who struggle to read themselves also face barriers in supporting their children's academic progress, and may be unable to assist with homework or other learning activities. However, parents who pursue their own education as adults can overcome these barriers and change the trajectory of their children's lives.³¹ Research also confirms that parents' improved education helps to improve their families' economic prospects.

Among workers who do not speak English as their first language, most began learning English as children or teens. Just over one in four (29%) low-skilled workers do not speak English as their first language.³² Among workers with low literacy skills, 71% reported that English was the first language they had learned. Another 21% said that Spanish was their first language, and 8% said that another language was the first one they had learned. These numbers were virtually identical among those with low numeracy skills.

Again, the picture is different with respect to digital problem solving skills. Workers with low digital problem solving skills were significantly more likely to report that English was the first language that they had learned – a full 81%, compared to 12% who said Spanish and 7% who said they had first learned another language. While NSC did not conduct further analysis, it is likely that the causes for this finding are similar to those discussed above regarding immigrants.

Finally, among workers who were non-native English speakers, there is a notable split in how old they were when they *did* learn English. More than half (58%) were age fifteen or younger when they learned, compared to 42% who were age sixteen or older. This finding is important, as substantial prior research has found that learning a language at a younger age has a host of positive effects.

MOST LOW-SKILLED WORKERS HAVE BEEN WITH THEIR EMPLOYER FOR AT LEAST 3 YEARS



SERVICE SECTOR WORKERS WITH LOW BASIC SKILLS: THEIR EMPLOYMENT STATUS

Our analysis also examined employment-related characteristics of workers with low skills, finding that:

A significant number work for small- and mid-sized employers. The overwhelming majority of workers with low skills (84%) work at locations with fewer than 250 employees, including 56% who work at locations with fewer than fifty employees. While some of these are local worksites that are part of a larger company, many others are not: Overall, 30% of workers with low skills are employed in small to mid-sized businesses.³³

These findings emphasize the importance of a broad based strategy for upskilling that includes both business and other stakeholders. Partnerships with nonprofit organizations, community colleges, and others are especially important for small and mid-sized businesses, which do not have the economies of scale that larger businesses can benefit from.

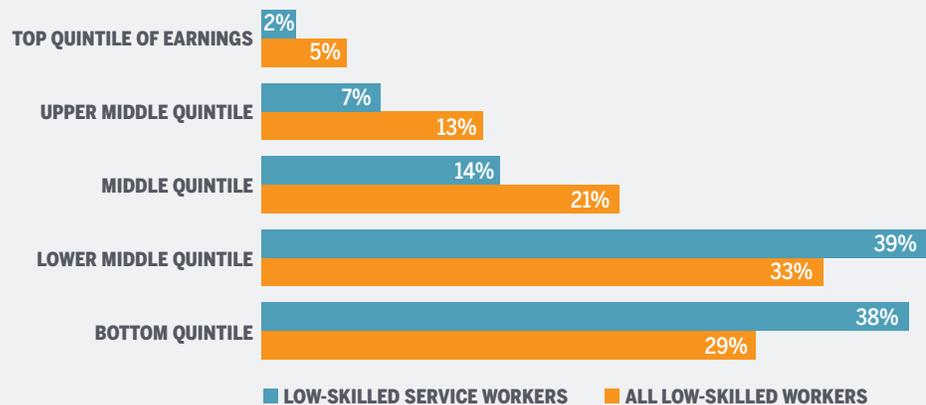
For example, smaller employers are less likely to have dedicated human resources staff, meaning there may be no one in the company who has the responsibility of identifying skill needs and pursuing training or professional development opportunities for employees. Even if opportunities are identified, the low headcount at small employers can make it difficult to provide paid release time for workers to participate in training, since there are few co-workers available to cover for them. Finally, smaller businesses often have fewer financial and other resources to devote to developing or hosting in-house education and training programs.

A strong majority of workers have been with their employer for at least three years. This important finding contradicted the common assumption that service sector positions are short-term jobs.³⁴ Rather, a full 58% of workers have been with their current employer for at least three years. This includes 36% – more than one in three workers – who have been with their employer for at least *six* years.

This longevity has important implications for employer investment in worker skills. It shows that many low-skilled workers are showing sustained loyalty to their employers. This suggests employers who make investments in worker skills could see payoffs for worker and company alike, particularly if skill building allows trusted employees to move into positions of more responsibility within the company.

It is also possible that these findings reflect workers' inability to qualify for other positions. That is, their low skills are keeping them stuck and preventing them from seeking new job opportunities. Without further data, it is impossible to be certain how these potentially conflicting hypotheses are playing out in the labor market.

MOST LOW-SKILLED WORKERS HAVE LOW EARNINGS



THE PAINFUL PRICE OF LOW SKILLS:

> There is often a direct correlation between a worker’s skill gaps and his or her ability to earn higher wages. Among the examples shared with us were: “A worker was unable to be promoted because she lacked her high school equivalency; she thus needed to work several jobs to support her children because wages are so low” and “Janitors with low literacy cannot be chosen for clean room or controlled area work. Those with low English are not chosen for higher, paid day shift work.”

> Another key informant focused on self-employed service workers, saying: “They tend to use interpreters [to negotiate pay and working conditions], or need middlemen who at times takes a piece of the payment cake.”

The overwhelming majority have low earnings. NSC’s data show that workers with low skills overwhelmingly have low earnings. Overall, 78% — nearly four in five service sector workers with low skills - fall into one of the two lowest earnings quintiles.³⁵ This finding has significant implications for workers’ ability to pay for upskilling opportunities, as individuals’ ability to finance “extras” such as class fees or tuition is very limited when their earnings may not cover daily living expenses.

Low earnings are a problem for all workers with basic skills gaps, but they are especially problematic in the service sector. In particular, among workers with low literacy across all industries, 29% are in the bottom quintile for earnings, while among **service sector** workers with low literacy the percentage is substantially worse, at 38%. The numbers are similar for the second-lowest earnings quintile, with 33% of all low-literate workers and 39% of low-literate service sector workers falling into this category.

At the other end of the continuum, only a tiny handful of workers make it into the top earnings quintile: Just 5% of all workers with low skills, and 2% of service sector workers with low skills.

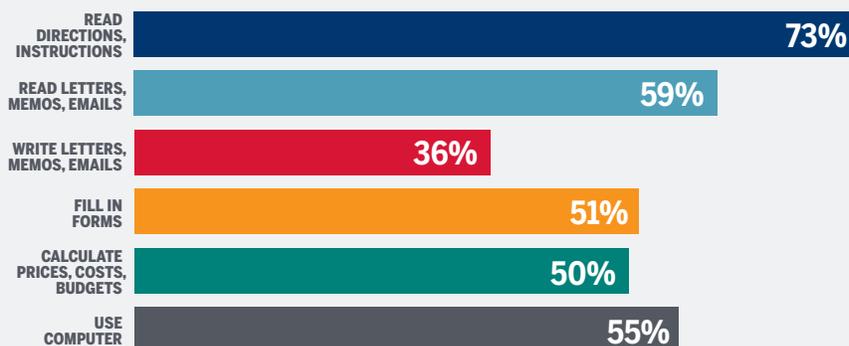
While these findings are no doubt influenced by the low wages in service sector occupations for workers at any level, they also help to explain the urgency among so many of the stakeholders NSC spoke for this report, who recognize that equipping people with better skills can enable them to earn higher wages.

SERVICE SECTOR WORKERS WITH LOW BASIC SKILLS: ON THE JOB

Our data analysis looked at a variety of different skills that workers are currently called upon to use at their jobs. NSC found that large majorities of workers are required to use reading, writing, math, and digital skills on the job — regardless of their ability to successfully complete such tasks.

Conversations with our key informants revealed that this issue essentially functions as an invisible drag on productivity and worker mobility. Employees who cannot fully carry out their own job duties depend on informal help from co-workers, spend substantial time and

DESPITE THEIR SKILL GAPS, MANY WORKERS REGULARLY NEED TO USE READING, WRITING, AND MATH ON THE JOB



effort hiding or compensating for their skill gaps, and avoid opportunities to advance out of fear their secret will be discovered.

Companies that depend on these workers to comply with personnel rules, safety regulations, and other crucial policies and practices may find themselves contending with the spillover consequences of such skill gaps. These can range from over-burdened colleagues to time consuming re-work, correcting inaccurately completed tasks. In some cases, worker skill gaps may even unwittingly jeopardize employee or customer well-being. Several key informants described situations in which workers' lack of familiarity with facility and company practices created potentially dangerous situations during fire alarms, or where workers expressed concern because they were not able to read the safety manual.

Below, NSC details specific findings related to workers' use of basic skills in the workplace. NSC found that workers are:

REGULARLY CALLED UPON TO USE LITERACY AND NUMERACY SKILLS ON THE JOB.

Despite their limited literacy skills, workers are overwhelmingly called upon to **read directions or instructions** in order to do their jobs. Nearly three-quarters (73%) of workers with low skills say they need to read directions as part of their current job, including 50% who must do so every day.

Similarly, a significant number of workers say they must **read letters, memos or e-mails** as part of their job. More than half (59%) of workers with low skills are called upon to read such materials regularly³⁶ as part of their jobs, including 37% who do so every day.

Low-skilled workers are also called upon to **write** letters, memos, and e-mails as part of their jobs. One in three (36%) of workers say they are regularly required to write such materials, including 18% who must do so every day.

Many workers also engage in other literacy-related tasks on the job. Half (51%) of workers with low skills regularly need to **fill in forms**, including 35% who do so daily.

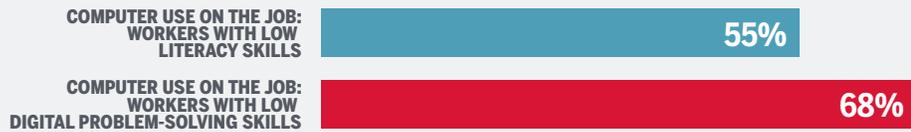
Math skills are also important for workers. Half of workers with low skills (50%) are regularly called upon to **calculate prices, costs, or budgets** in their current jobs, including 38% who do so daily.

WHEN LOW SKILLS CAUSE PROBLEMS ON THE JOB:

Numerous adult educators and workforce development specialists shared examples of how workers' skill gaps can hamper their ability to do their jobs:

- > Lack of literacy skills affects workers' ability to read directions and write reports. Often, poor language skills (not just English as a second language) impacts understanding of verbal directions or communication with supervisors, which can lead to job loss.
- > A home health aide could not read instructions left by the overnight caregiver.
- > I had a student who could not type fast enough to enter information into the computer for her job.
- > Some of my students cannot read memos at work, so they miss important information from their supervisors.

WORKERS WITH LOW DIGITAL SKILLS ARE MORE LIKELY TO BE USING COMPUTERS ON THE JOB THAN THOSE WITH LOW LITERACY



This was one of the few areas in which there were statistically significant differences among sub-sectors of service workers: Retail workers were substantially more likely to report having to draw upon these numeracy skills on the job, compared to service sector workers as a whole. Two-thirds (65%) of retail workers said that they need to calculate regularly, including 55% who must do so daily.

REGULARLY CALLED UPON TO USE DIGITAL TECHNOLOGY SKILLS ON THE JOB.

Digital technology surfaced repeatedly in our research as both a boon and a barrier to workers with basic skills gaps. One key informant said bluntly that some workers are “*so afraid of computers, they will stay in a dead-end job to avoid them.*” Numerous others described online job applications and other digital tasks as often intimidating for workers.

Nevertheless, more than half (55%) of workers with low skills say they use a computer in their current job. Of those that do, most report that the level of computer use required is “straightforward” (73%) compared to “moderate” (26%) or “complex” (2%).

Notably, this number *rises* to fully 68% of workers with low digital problem solving skills. In other words, two out of three workers who struggle to use computers are using them on the job anyway.

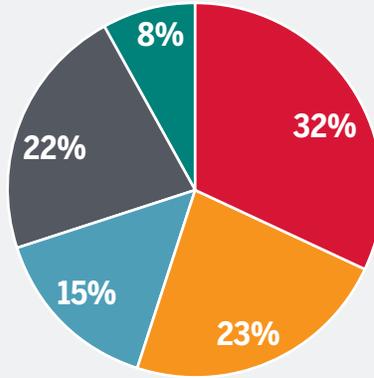
In some cases, a sympathetic employer may accommodate a worker’s skill gaps because they have other skills. One key informant shared this story: *A worker with 4th grade equivalent reading skills has not been able to take the Certified Nurse Assistant (CNA) exam to qualify for job certification and a raise. [But] she is a very valued worker in the dementia wing; supervisors and staff are helping her chart and read.*

Another story helped illustrate the significant interpersonal investment required to assist one worker: *One student came to our program with no literacy. While beginning to develop literacy here, he went to a job fair and decided to apply for a job with [a major retailer]. He had to fill out an online application. With his low literacy and low computer skills, it would have been impossible for him to do this alone. Fortunately, one of our volunteers spent many hours with him over several days to complete the application. Once he was hired, he was required to do some online job training. This was also very difficult, but he was very fortunate that his particular manager was very patient and gave him extra time to complete it.*

In contrast, for many English language learners, technology is a lifeline that helps them bridge the gaps between their first language and the English they need for the workplace. Several key informants described ways in which workers use their mobile phones to take photos at the workplace for later study in the classroom or at home. One said: *“A donut-shop worker who was a new immigrant took a cellphone picture of all of the flavors on the ordering dashboard screen that she needed to learn. She texted it to her Cell-Ed coach so they could study it together later.”*

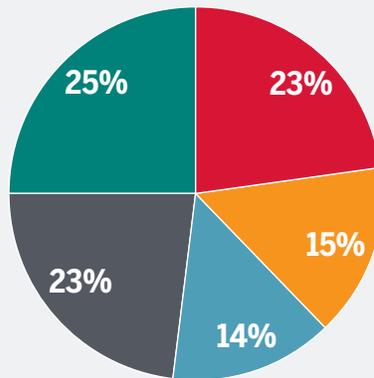
A MAJORITY OF WORKERS ARE CONTINUING TO LEARN NEW THINGS ON THE JOB

- LEARN NEW THINGS EVERY DAY
- LEARN NEW THINGS ONCE A WEEK
- LEARN NEW THINGS AT LEAST ONCE A MONTH
- LEARN NEW THINGS LESS THAN ONCE A MONTH
- NEVER LEARN NEW THINGS



MORE THAN 1 IN 3 WORKERS ARE REGULARLY TEACHING PEOPLE ON THE JOB

- TEACH PEOPLE EVERY DAY
- TEACH PEOPLE AT LEAST ONCE A WEEK
- TEACH PEOPLE AT LEAST ONCE A MONTH
- TEACH PEOPLE LESS THAN ONCE A MONTH
- NEVER TEACH PEOPLE



In other cases, workers are not permitted to use a phone or other translating device at work. These workers risk being punished or fired if they are caught using a phone on the job. Perhaps unsurprisingly, workers who are self-employed or working in private homes were often most likely to be using technology successfully. “Cleaning ladies use their phones to translate and communicate with employers,” said one key informant. “Workers use Google Translate to take pictures of documents and translate them on the spot,” said another.

REGULARLY LEARNING AND TEACHING NEW THINGS ON THE JOB.

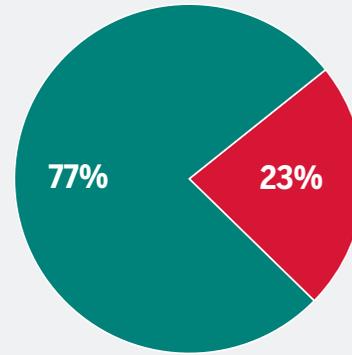
A majority of workers are actively engaged in learning new things in their current jobs, with more than half (55%) reporting that they learn work-related things from co-workers or supervisors at least weekly. More than one in three workers are also *teaching* others, with 38% reporting that they are instructing, teaching, or training people at least once a week.

More specifically, one-third (32%) of workers with low skills said they learn new things **every day**, and another 23% said they learn new things at least once a week. Fifteen percent said they learn new things at least once a month, 22% said less than once a month, and 8% said never.³⁷

With regard to teaching, almost one in four (23%) workers with low skills report that their current job involves teaching people **every day**. Another 15% said that they teach people at least once a week, while 14% said they do so at least once a month, 23% said less than once a month, and 25% said never.

NEARLY 1 IN 4 LOW-SKILLED WORKERS ARE SUPERVISORS

■ NOT SUPERVISING
■ SUPERVISING



STRATEGIES FOR SURVIVAL:

> “I have always been impressed with the ingenuity and intelligence nonreaders demonstrate,” one adult educator told NSC.

> Others told NSC of techniques that they had seen workers use to survive and even be promoted despite their skill gaps: “Some workers leverage their second language skills if they speak two languages,” said another key informant.

> “One non-reader would get the guys he worked with to talk about something they were given to read, so that he could pick up the information orally,” said another.

> Other interviewees described workers who pooled their talents to support each other; went into business on their own to avoid being exploited, or simply were willing to ‘power through’ and not be afraid to fail in their attempts at communication.

OFTEN SUPERVISING OTHER PEOPLE.

Nearly one in four workers with low skills are supervisors, and half of those are overseeing six or more employees. The consequences of skill gaps thus go beyond the individual worker and can include cases in which a supervisor struggles to write memos or directions to employees; to read or complete performance reviews for their staff; and to develop or monitor budgets and other financial documents.

Overall, 23% of workers with low skills are in charge of supervising colleagues at work. Half of these supervisors (50%) are overseeing at least six other workers. See Table 2.

Table 2: Among workers with low skills who are supervisors, half are overseeing at least six people

Supervising 1 to 5 people	50%
Supervising 6 to 10 people	31%
Supervising 11 to 24 people	12%
Supervising 25 to 99 people	4%
Supervising 100 or more people	2%

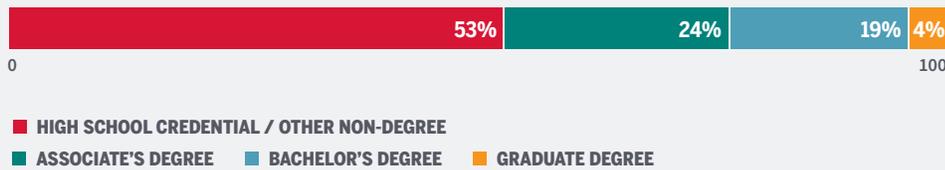
SERVICE SECTOR WORKERS WITH LOW BASIC SKILLS: THEIR EFFORTS TO UPSKILL

A robust proportion of workers were actively pursuing education and training opportunities. These included both formal and informal learning activities, many leading to recognized credentials. Obtaining credentials is a vital step for workers seeking to increase their earnings and access additional career opportunities. Research has shown that, in general, credentials such as high school equivalency or college degrees, as well as many industry-specific credentials, are correlated with higher earnings.

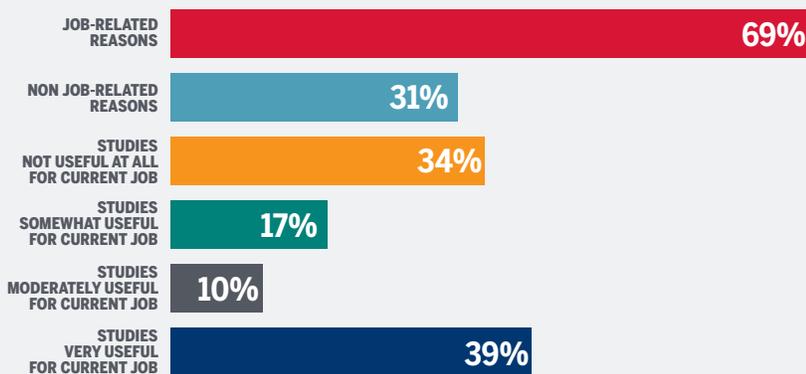
In this latter category, it is important to distinguish between training that is specific to an individual company, and training that allows workers to earn portable credentials that are valid across all companies in a given sector. Portable, industry-recognized credentials are essential in equipping workers to effectively communicate their capacities to new potential employers and move up the career ladder.

Below, NSC outlines key findings regarding workers’ participation in a variety of education and training opportunities, including basic skills, English language learning, formal degree or certificate programs, and more.

AMONG WORKERS PURSUING FORMAL EDUCATION, A LARGE MAJORITY IS FOCUSED ON BASIC-SKILLS OR MIDDLE-SKILLS CREDENTIALS



MOST WORKERS PURSUING DEGREES DID SO FOR JOB-RELATED REASONS, BUT NOT NECESSARILY THEIR CURRENT JOB



ONE IN TEN WORKERS PARTICIPATED IN A BASIC SKILLS CLASS IN THE PREVIOUS YEAR.

Workers were asked about their participation in adult education classes that were specifically focused on improving their reading, writing, and math skills, or on helping them attain high school equivalency.

Because of the way the question was asked, it is not possible to know how much duplication there is across the categories. However, 10% of service sector workers with low skills reported that they had participated in a basic skills class in the previous year.

Four percent of workers had participated in a GED class in the previous year. Three percent of workers had participated in another type of high school equivalency (or adult high school) class in the previous year.³⁸

MANY ARE ACTIVELY ENGAGED IN OBTAINING CREDENTIALS.

A full 27% of workers had pursued a formal degree or certificate in the past year, while at least 39% had engaged in other types of educational opportunities during the same time period. (Note: due to the format of the dataset from which these numbers were drawn, they contain an unknown amount of overlap.) Among workers who are not native English speakers, approximately 7% reported that they had had a language tutor or participated in English classes over the past year.

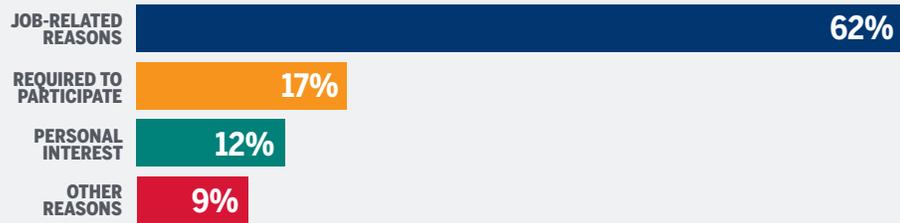
These numbers affirm the keen interest that many workers have in building their skills. NSC heard repeatedly from key informants about the initiative shown by workers in seeking out and participating in educational opportunities.

SUCCESS STORY:

> I had a student who had owned a small business in his country. Because he lacked the English skills and the confidence to communicate with people here in the U.S., he was only able to get a job as an overnight stocker in a grocery store. As his English improved, he was able to start working in positions that involved interaction with customers, such as cashier. Eventually, he was able to utilize more of the business skills he honed in his native country when he became an assistant manager in the same grocery store.

— Adult educator

MOST WORKERS WHO PARTICIPATED IN OTHER LEARNING OPPORTUNITIES DID SO FOR JOB-RELATED REASONS



Of those who were pursuing formal education, a slight majority (53%) were studying for a high school credential or other pre-degree credential. (The dataset used in this report does not allow us to break out this category to a further level of detail.) Another 24% were studying for an associate's degree, 19% for a bachelor's degree, and 4% for a graduate degree.

This educational participation is *not* likely to be merely a function of individuals' age; as detailed elsewhere in this report, three-quarters (76%) of service sector workers with low literacy are age twenty-five or older, including 52% who are age thirty-five or older.

WORKERS WHO PURSUE ADDITIONAL EDUCATION USUALLY DO SO FOR JOB-RELATED REASONS.

Fully 69% of those in degree or certificate programs said that they were doing so for job-related reasons, as did 62% of those participating in other types of learning opportunities. This finding is a strong affirmation that workers recognize the strong correlation between increased education and greater economic opportunity in the United States.

It is unclear whether respondents answering this question were thinking of their current job or their future employment prospects more broadly when they answered. However, respondents were also asked how useful their studies were for the job they had at the time. One-third (34%) said they were not useful at all; 17% said somewhat useful; 10% moderately useful; and 39% said very useful. These two findings taken together suggest that at least some workers who are pursuing formal education expect that their studies will be more useful for a *future* job than their current position.

The connection between English language skills and career opportunities is perhaps even clearer. Numerous key informants described the trajectory of workers whose job prospects were hampered by lack of English or brightened by their growing language skills. One adult educator explained: *[My adult students] have to work as dishwashers or bussers until their English improves. Fortunately, when it does, several have been offered the opportunity to train to be a waiter. This comes with a big salary increase. Similarly, many of my female students start as housekeepers until their language improves enough for them to begin child care or other domestic positions.*

Only a minority of workers had received any kind of on-the-job training over the past year.³⁹ Just 39% of workers with low skills had participated in such training.

Other types of informal educational activities had more minimal participation. Sixteen percent of workers with low skills had participated in "seminars or workshops." Five percent said that they had participated in "other courses or private lessons."

As with formal education, job-related reasons were by far the most popular explanation for why workers were participating in these types of informal learning opportunities, with a strong

majority (62%) citing such reasons. Another 17% said they were required to participate (the data does not reveal whether they were required to do so by their employer or by another entity, such as a probation officer or court), and 12% said they were doing so because of personal interest. The remaining handful of respondents cited other reasons.

Workers participating in non-formal education were *more* likely to report that the training or education they received was useful for their current job, compared to participants in degree programs. Two-thirds (67%) said it was very useful, 17% said moderately useful, 10% somewhat useful, and just 7% said it was not at all useful.

SERVICE SECTOR WORKERS WITH LOW BASIC SKILLS: BARRIERS TO UPSKILLING

NSC's analysis also looked at factors that might prevent workers from being able to access upskilling opportunities. It bears noting that while many of the issues identified here may be familiar, they can weigh more heavily on service sector workers due to factors identified above. In particular, the low wages reported by many workers can limit their ability to pay for direct education and training costs, but can also inhibit their ability to finance ancillary costs such as childcare or transportation that are often necessary in order to participate in upskilling opportunities. In addition, the small size of many service sector employers can preclude their ability to invest more fully in workers' skill-building.

The specific findings were:

EMPLOYERS ARE MORE LIKELY TO FINANCIALLY SUPPORT WORKERS' PARTICIPATION IN NON-FORMAL TRAINING THAN IN FORMAL DEGREE OR CERTIFICATE PROGRAMS.

A small minority (16%) of workers who are pursuing formal degrees or certificates reported that their employer paid for some or all of the tuition costs, compared to 59% of those participating in other types of education and training opportunities.⁴⁰

Specifically, 9% of workers participating in formal degree or certificate programs said their employer had paid the total cost and 7% said their employer paid a portion of the cost. The remaining large majority (84%) said that their employer had *not* paid any such costs. (These percentages exclude respondents who said that there had been no such costs or that they had not had an employer at the time they were pursuing the degree or credential.)

The numbers are quite different for non-formal education. Fully 54% of workers participating in non-formal learning opportunities said that their employers had paid the total cost, and another 5% said that their employer had paid part of the cost. Just 41% said that their employer had not paid any such costs. (Again, these percentages exclude those who said that there had been no such costs or they had not had an employer at the time.)

Without further data, it is impossible to know the reasons behind these findings. Certainly it is likely that non-formal education is more inexpensive than a degree program, and thus employers may view it as a more affordable benefit to provide to their employees. It is also possible that workers were describing training that is *required* for their occupation — either by their employers or by governmental regulations — and thus something that employers would be likely to anticipate and budget for. An example of this might be safe food-handling certification for restaurant workers.

LOGISTICAL BARRIERS MAKE IT HARD FOR WORKERS TO PARTICIPATE IN LEARNING OPPORTUNITIES.

Nearly one in three workers (31%) said they would have liked to participate (or participate more) in learning opportunities over the past year, but had not been able to. Lack of time

A WARY EYE ON ONLINE LEARNING:

> Educational institutions need to understand that online classes take more organization and more work by the student than a traditional classroom. This chases off many of the low-skilled workers from improving their skills or causes them to drop out, because if these workers were computer savvy or had the skills, they would have attended college sooner.

— Adult educator

> A lot of community colleges are putting more entry-level classes online. This is a huge [additional] barrier for a group that is already struggling to increase their skills.

— Adult educator

and money were the overwhelming reasons given, including being too busy at work, the educational program being offered at an inconvenient time, having limited time for education due to childcare or family responsibilities, and being unable to afford the educational opportunity they wanted to pursue. These findings have clear implications for employers who want to support their workers' skill-building.

Table 3: Lack of time, money are top reasons that workers don't participate in learning activities

Too busy at work	24%
Education or training was too expensive/could not afford it	21%
Did not have time because of child care or family responsibilities	16%
The course or program was offered at an inconvenient time	14%
Something unexpected came up that prevented them from taking education or training	10%
Other	8%
Lack of employer support	6%
Did not have the prerequisites	2%

DIGITAL TECHNOLOGY BRINGS SIGNIFICANT COSTS AS WELL AS OPPORTUNITIES FOR WORKERS.

NSC's data analysis showed that just 13% of workers with low literacy had participated in open or distance education programs in the previous year.⁴¹ Unfortunately, no further information is available about the *type* of learning that workers were involved in. A very wide variety of distance education programs are available in the United States, including accredited degree or certificate programs; so-called Massive Open Online Courses (MOOCs), often offered by accredited universities but on a noncredit basis; and more informal courses such as *Maestro en Casa* (an English language class offered by radio); and *Cell-Ed* (an English class offered via mobile app).

This finding points to the reality that technological solutions alone are not necessarily a solution for many workers with basic skills gaps. Many of NSC's key informants echoed this skepticism, cautioning that in order for online approaches to be effective, they must carefully blend digital and in-person learning.

As NSC's data analysis makes clear, skill gaps among U.S. service sector workers are a significant challenge that often prevents people from achieving their full potential. Unlocking this potential will benefit individual workers as well as the businesses that employ them and the wider U.S. economy. Business leaders, policymakers, and other advocates have the power to unleash that potential by implementing specific, proven strategies to help workers upskill and companies succeed in a competitive economy.

Below, NSC outlines specific steps that businesses and other stakeholders can take to address this challenge in their communities.

BETTER SKILLS, BETTER BUSINESS: STEPS EMPLOYERS CAN TAKE

Employers who are interested in helping their employees build skills and advance in their companies have a range of interventions available to them. Below, NSC highlights some proven models for worker upskilling, and shares examples of companies that are implementing them.

PARTNERSHIPS: ESSENTIAL FOR REACHING A MAJORITY OF SERVICE SECTOR WORKERS

Given the substantial number of service sector workers who are employed by small and mid-sized businesses, it is important to note that company size and internal capacity are significant factors in determining what kind of upskilling intervention is realistic for an employer to implement. Smaller companies often have limited human resources staffing and capacity, making it difficult to pursue some of the more ambitious interventions described here.

That is why partnerships with other firms in an industry and with education and training providers are essential. This approach is particularly beneficial to small- and mid-sized companies that could not otherwise achieve the necessary scale. They can also be a successful strategy for larger corporations. Companies interested in pursuing this strategy can:

1. Participate in sector partnerships to identify talent gaps and meet training needs. For small- and mid-sized companies, sector partnerships, also known as industry partnerships, can provide an effective way to aggregate talent demand within an industry. Sector partnerships typically include multiple firms in the same industry, at least one education and training partner, and other stakeholders such as a local workforce board or private foundation. Partners collaborate to identify the specific skill needs of occupations within their industry; determine the training resources available to help meet those needs; and identify career pathways for new and incumbent workers to progress.

The [BEST Corp. Hospitality Training Center](#) is one example of a sector partnership. BEST provides training for new and existing (incumbent) workers in numerous hotels across the Boston area. Employer partners provide detailed input on the curricula, design, and focus of the training, which includes both classroom instruction as well as extended “job shadowing” experiences in which new trainees work alongside established hotel staff to learn the ropes.

The training is primarily financed through employer contributions to a labor union training fund, as negotiated under a collective bargaining agreement.⁴² Of the one hundred fourteen participants in BEST’s Room Attendant Training Program between 2011-14, 90% graduated; 87% were placed in jobs; and 92% have been retained in those jobs. Participants saw an average hourly wage *gain* of \$7.08 an hour compared to their earnings before completing training, and now have an average wage of \$16.48 an hour.⁴³

2. Serve as the employer partner for registered apprenticeship or pre-apprenticeship programs. Apprenticeship models provide crucial “earn while you learn” opportunities for people to build skills while employed. While there are hundreds of registered apprenticeships in the U.S., the use of this model in the service sector is relatively recent. Several healthcare apprenticeships and pre-apprenticeships have been funded in the past few years as part of the federal Health Professions Opportunity Grants program.⁴⁴

One such program is a partnership between Susque-View, a nursing and long-term care facility in rural Pennsylvania, and a local education provider, the Central Susquehanna Intermediate Unit. The apprenticeship program helps eligible individuals train as Certified Nurse Aides (CNAs). Reflecting the rural community in which it is operating, the program uses a “flipped classroom” approach that combines online and in-person learning.

3. Partner with training organizations and community colleges to help workers upskill. Businesses have a wide range of prospective partners with which they can collaborate to implement program models that are proven to help workers upskill. Among these partners are community colleges, community-based nonprofit organizations, and other private training providers. Partnering with a community college can enable workers to earn college credit and/or industry-recognized credentials that are “stackable” toward a degree or



certificate. Nonprofit organizations can offer specialized expertise in effectively working with specific populations, such as veterans, English language learners, and individuals returning from correctional institutions. Private training providers can fill a market niche in new or emerging areas where there is no established training pipeline.

Examples of such partnerships are highlighted below.

Vocational English language classes: As detailed in the data analysis section of this report, one in four service sector workers with low skills are immigrants. Many of these workers also have limited ability to read, write, or speak English, which can hamper their ability to successfully engage with co-workers, supervisors, and customers. Numerous companies are addressing this issue by providing opportunities for their employees to learn English that is customized for their workplace needs. For example, grocery chains Whole Foods, Kroger, and Publix are offering vocational English classes to their workers via the Skills and Opportunity for a New American Workforce initiative.⁴⁵

Foundational credentials such as high school equivalency: McDonald's has tackled this issue as one element of its Archways to Opportunity program. More than 5,000 restaurant employees took advantage of the program in 2015, including 819 who received tuition assistance to participate in Career Online High School (COHS).⁴⁶ Provided by Cengage Learning, Career Online High School allows workers to earn an actual high school diploma (rather than an equivalent) via online, self-paced classes.

COHS offers participants the opportunity to earn career certificates simultaneously with their high school diploma. Among these certificates are Retail Customer Service, which provides a comprehensive overview of skills critical to success in retail settings, with career coursework in areas such as management and customer service skills; and Food & Hospitality, which includes courses such as customer service skills and food safety, and prepares students for the Prometric Certified Professional Food Manager (CPFM) exam.⁴⁷

Workers participating in Archways to Opportunity include employees of McDonald's itself as well as participating independent franchisees. The Archways program also provides career advising and tuition assistance for college education, among other offerings.

Industry-informed training. Employers can provide timely and relevant feedback as community colleges are developing new training programs. One such example comes from Roanoke, VA, where employer advisors played an important role in informing the curriculum content and overall design for a Microsoft Office Specialist (MOS) for Healthcare and Customer Service training program. The program was developed via a partnership between Virginia Western Community College and the nonprofit Goodwill Industries of the Valleys.⁴⁸ Businesses such as Friendship Retirement Community and Carilion Clinic participated in the program's employer advisory committee, which enabled industry partners to inform curriculum content, host internships and job-shadowing opportunities, and serve as mock interviewers for program participants.

Integrated Education and Training models: First developed in Washington State via a program known as I-BEST,⁴⁹ Integrated Education and Training (IET) models enable workers to build basic skills such as reading or math while simultaneously receiving instruction in occupational or industry-specific skills. Courses are often "team taught" with dual instructors who specialize in the relevant areas. There is a rich base of evidence to support the effectiveness of IET models,⁵⁰ which have been adopted by numerous community colleges and other education and training providers over the past ten years.

SUCCESS STORY:

> A non-reader was a highly skilled employee in his department but was unable to be promoted until he came to adult education and learned the accommodations necessary to write memos, place orders, and read messages and instructions. He learned to read and received his promotion to supervisor

— Adult educator

Community colleges in Washington State have implemented I-BEST classes in a range of service sector industries, including healthcare and food service. In addition, the I-BEST at Work program provides training to incumbent workers through partnerships between adult education providers and employers.⁵¹ IET models are not limited to community colleges: In Arizona, the nonprofit Friendly House offers an I-BEST program that enables individuals to earn their high school equivalency while also training for a career in the healthcare field, while the nonprofit International Institute of Minnesota offers an IET approach through its hotel housekeeping program.⁵²

“Blended” online/classroom learning: For workers who cannot easily attend classes in person, online or distance learning can be an appealing option. Research suggests that for such learning to be effective, it should be coupled with some type of in-person support. Programs such as [English Innovations](#) accomplish this by providing a blended model that includes both in-class and independent, self-paced learning through online tools and game-based learning. English Innovations was piloted in the Seattle area between 2011-13, and has since been expanded to other cities.

The program’s employer partners vary in size and industry focus, with past English Innovations classes having been held at local chain Tutta Bella Neapolitan Pizzeria as well as Seattle-Tacoma International Airport.⁵³ The program reports that during the pilot, “nearly 70% of post-tested students achieved significant language learning gains, with nearly 60% of students completing an entire language learning level in twelve weeks (compared to 41% completion rate in traditional English as a Second Language courses).”

Industry certifications: Businesses can increase their economic competitiveness by facilitating their workers’ ability to obtain in-demand credentials that will allow them to meet customer demands. For example, the increasing popularity of LEED-certified environmentally friendly office buildings in California has created a demand for building services companies whose workers are equipped to meet stringent standards for maintaining those buildings.

Recognizing this opportunity for companies and workers alike, the California-based nonprofit Building Skills Partnership (BSP) developed a [Green Janitor Education Program](#). BSP’s program was developed in partnership with the U.S. Green Building Council-Los Angeles (USGBC-LA) the Building Owners and Managers Association of Greater Los Angeles and Service Employees International Union-United Service Workers West. The program provides hands-on training to address operations and maintenance practices that enable buildings to meet green performance standards, with a focus on energy efficiency. It is a qualified USGBC program through which janitors are accredited.

In less than three years, more than 500 janitors have been certified through the program. BSP reports: “We have seen in-house savings estimates marked at 5% due to implementation of the program. The savings come from janitors having a strong understanding of why there is need to go green, how to do it, and increased compliance of established sustainability goals.”⁵⁴

GOING IT ALONE: IN-HOUSE, ON-SITE UPSKILLING

Companies large enough to have a critical mass of workers who could benefit from upskilling can establish learning opportunities at the work site. Typically, such classes are offered during the work day or immediately before or after a shift. Companies often provide paid release time to maximize worker participation. Curriculum content is designed based on the company’s identified needs, and worker progress is measured through a combination of standardized assessments and customized tools.

SUCCESS STORY:

> A student who was a trained chef could only get hired as a dishwasher due to his limited language skills. That was ten years ago. After learning English, he became an executive chef in a prominent restaurant. Today, he finds himself in need of additional remediation as he needs to communicate in writing more frequently and struggles with his written English. This is a story that we can tell over and over in many jobs

— Adult educator

An example of an employer that has implemented this model is Beth Israel Deaconess Medical Center in Boston, which offers a host of on- and off-site learning opportunities for its 8,000 employees. Among the classes offered on-site are computer skills and career development.⁵⁵ Beth Israel also supports a pipeline program to help individuals upskill for in-demand careers. The pipeline program was launched in response to the medical center's challenge in facing "staggering" vacancy rates of 38% for surgical technologists and 15% for medical laboratory technicians.⁵⁶

The program uses a competitive process to select workers to participate in training programs offered on-site, part-time (to allow employees to continue working their current jobs full-time), and at little to no cost to the employee. Individuals who successfully complete the program are guaranteed a job at Beth Israel. The program has substantially reduced vacancy rates in the targeted professions.

Another example is [ACTS Retirement Communities](#), whose Corporate University offers a wide range of classes for employees at all levels of the company. [More than 2,500 ACTS employees participate](#) in courses that range from trade skills education to business.

ANCILLARY OPTIONS TO SUPPORT UPSKILLING INITIATIVES

A number of companies that are implementing one of the upskilling programs described above have also established processes for employees to serve as peer mentors or tutors, helping their co-workers acquire English language skills or prepare for U.S. citizenship. While this technique is *not* a substitute for formal programs, it can be a valuable ancillary tool. Building Skills Partnership (described above) oversees some such efforts as part of its ADVANCE program.⁵⁷

Another option to support broader upskilling efforts is to provide payroll deductions or make matching employer contributions to cover tuition costs, class registration or occupational licensing fees, citizenship application costs,⁵⁸ or other fees associated with learning and economic advancement opportunities. Depending on how the company chooses to structure this benefit, it can function as an enforced savings mechanism for employees, a matched savings program in which the employer also contributes, or a way for workers to repay an advance given to them to cover eligible costs. Some businesses participating in the New American Workforce project spearheaded by the nonprofit National Immigration Forum offer payroll deduction.⁵⁹

TAKING UPSKILLING TO SCALE: POLICY RECOMMENDATIONS

While many of the employer practices described above can be implemented on a small scale by individual companies, facilitating widespread economic mobility for service sector workers will require advancing proven policies at the state and federal level. Below are key opportunities for action.

FEDERAL POLICIES

Make sector partnerships America's way of doing business. Sector partnerships serve a vital function by helping smaller employers aggregate the demand for talent, establish a talent pipeline, and identify current and future skill needs. Policymakers can encourage communities to implement this approach via 1) creating better alignment between existing federal upskilling investments and local, industry-led partnerships; and/or 2) making further investments to enable additional communities to launch their own partnerships, particularly in the service sector.

Yet, many American communities lack sector partnerships, and those that do have them are often focused on industries outside the service sector. Policymakers and advocates have a number of opportunities available to them to incentivize the implementation of high-quality sector partnerships. Among these avenues are improved alignment between existing federal upskilling investments and the local, industry-led voice of sector partnerships; and further investments to enable additional communities to launch their own partnerships, particularly in the service sector. Specific opportunities include: Clarifying expectations about sector partnerships as states implement the Workforce Innovation and Opportunity Act (WIOA); encouraging institutions receiving Carl D. Perkins Career and Technical Education Act (Perkins Act) funds to collaborate with sector partnerships; and advocating for Congressional action to create an ongoing funding mechanism for regional sector partnerships.⁶⁰

Make it easier for workers to navigate career pathways. Many service sector workers are seeking further education, but face barriers in accessing effective learning opportunities. Policymakers can assist these workers by improving connections so that people can more easily transition between key federal programs that support adult education (including high school equivalency and English language acquisition) and workforce development.

Specific opportunities include: Using the reauthorization of the Perkins Act to create more explicit connections between Career and Technical Education (CTE) programs and adult education; strengthening Perkins Act support for community college CTE; but providing guidance on how states can better use WIOA to support basic skill development in the context of occupational training. Finally, the upcoming reauthorization of the Higher Education Act (HEA) provides a powerful opportunity to develop a new Career Pathways program for learners with foundational skill needs, which among other elements should incentivize the development of IET programs.⁶¹

Fully fund federal investments in adult education. The Adult Education and Family Literacy Act (Title II of WIOA) provides crucial federal support for adult basic education, high school equivalency, and English language programs. But funding has dropped substantially over the past decade, and the number of individuals served has fallen from more than 2 million to just 1.5 million. At a minimum, policymakers should fund Title II at its full authorized level, and should consider increasing funding further to strengthen the infrastructure of the adult education system via professional and curriculum development; high-quality pathway navigation and support services; and the adoption and use of technological tools via proven models such as blended learning.

Expand financial aid to be more responsive to working learners and businesses. Pell Grants are a vital tool for allowing low-income workers pursuing higher education. But too often they are not available to workers enrolled in short-term, demand-driven upskilling programs. As part of reauthorization of the HEA, Congress should expand financial aid to include short-term credentials and competency-based education, and the Department of Education should increase its technical assistance to participating higher education institutions to improve student participation rates.

Support the expansion of work-based learning opportunities. Apprenticeships and pre-apprenticeships can be effective on-ramps to economic mobility. However, there are relatively few work-based learning opportunities in the service sector. Policymakers should remedy this by supporting the expansion of work-based learning opportunities to new industries and workers in the service sector.

Specific opportunities include: Promoting apprenticeship as an allowable Temporary Assistance for Needy Families (TANF) activity; targeting Congressional investments in



apprenticeship to support diversification of the apprenticeship pipeline; and providing subsidies to smaller firms to help cover initial costs of hire, orientation and training-related instruction of new apprentices.

Incentivize private investment in frontline workers with basic skill needs. Employers play an important role in helping entry-level workers upskill. Congress should restructure the \$1 billion Work Opportunity Tax Credit (WOTC) as the Work-Based Learning Opportunity Tax Credit. This program would reward companies that hire people exiting public benefits programs and those with low basic skills via a tax credit that partially offsets costs incurred by businesses. Eligible costs would be those incurred by companies that invest in on-site training or pay the tuition of such employees who are learning off site at a community college or other training institution, who are pursuing that training as part of an apprenticeship or other formalized work-based learning program.

STATE POLICIES

Fund and support industry sector partnerships. Regardless of how quickly federal policy recommendations are adopted, *state* policymakers and advocates can support the development of partnerships in their communities. This is especially important given the number of workers with low skills who are employed in small to mid-sized companies, as smaller companies often rely on mechanisms such as sector partnerships to ensure their voices are heard and their needs are met by education and training providers. States can support sector partnerships by implementing robust policies that include funding, technical assistance, and program initiatives.⁶² While partnerships should be responsive to local labor market demand, states can and should disseminate examples and provide support to encourage the development of partnerships in the service sector, as well as those that are accessible to workers with basic skills gaps.

Advance effective Integrated Education and Training models. As described above, IET programs allow workers to build basic skills such as reading or math while simultaneously training for a specific occupation or industry. IET is a proven model that is effective across a range of industries, including the service sector. Policymakers can facilitate the development and implementation of high-quality IET models by providing state funding, launching a programmatic initiative, offering technical assistance, or setting a requirement that adult education providers offer IET.⁶³

Support job-driven financial aid policies. States can enact policies that provide “mortar” to fill in the cracks between federal financial aid policies. Such policies make it possible for part-time students, those in short-term programs, and working learners to enroll in middle-skill training programs that can help them achieve economic mobility. Given the low wages among service sector workers and relatively scarce employer support for tuition reimbursement, as described above, such policies are especially important for workers in the service sector. They can particularly serve to even the playing field for workers employed at small companies that are not able to offer tuition assistance.⁶⁴

Establish stackable credential policies that include industry certifications. A “stackable” credential is an industry-recognized credential offered by a certificate or other non-degree program, or a third-party certification or occupational license, which articulates toward a higher-level certificate or associate’s degree in the same occupational area. Stackable credentials are particularly important for low-wage workers because they allow individuals to complete education or training that matches their abilities and aspirations, receive a credential, and continue their education at a later time without the added expense of repeating coursework they have already completed. States can ensure that industry



certifications earned by workers are stackable credentials. For example, states can require that colleges grant a minimum number of credits to students who have earned an industry certification.⁶⁵

Support businesses in providing work-based learning opportunities. Companies that are interested in establishing apprenticeship programs or other work-based learning opportunities can be encouraged and incentivized to do so through tax credits or wage subsidies. States can provide credits or subsidies on a per-worker basis, or as part of a grant program that covers a cohort of workers. Alternatively, states can support work-based learning by making it a required component for career and technical education programs or other education and training efforts funded through state appropriations.⁶⁶

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APPENDIX A

DESCRIPTIONS OF THE PIAAC ASSESSMENT LEVELS USED IN THIS ANALYSIS

Below are the official descriptors for the PIAAC levels used in our analysis. As described above, those are: Levels 0-2 for literacy, 0-2 for numeracy, and 0-1 for problem solving in technology-rich environments.

View full descriptors for other PIAAC levels at: <https://nces.ed.gov/surveys/piaac/framework.asp>

Description of PIAAC literacy discrete achievement levels

Achievement level and score range	Task descriptions
Below Level 1 0 - 175	The tasks at this level require the respondent to read brief texts on familiar topics to locate a single piece of specific information. There is seldom any competing information in the text and the requested information is identical in form to information in the question or directive. The respondent may be required to locate information in short continuous texts. However, in this case, the information can be located as if the text were non-continuous in format. Only basic vocabulary knowledge is required, and the reader is not required to understand the structure of sentences or paragraphs or make use of other text features. Tasks below Level 1 do not make use of any features specific to digital texts.
Level 1 176 - 225	Most of the tasks at this level require the respondent to read relatively short digital or print continuous, non-continuous, or mixed texts to locate a single piece of information that is identical to or synonymous with the information given in the question or directive. Some tasks, such as those involving non-continuous texts, may require the respondent to enter personal information onto a document. Little, if any, competing information is present. Some tasks may require simple cycling through more than one piece of information. Knowledge and skill in recognizing basic vocabulary determining the meaning of sentences, and reading paragraphs of text is expected.
Level 2 226 - 275	At this level, the medium of texts may be digital or printed, and texts may comprise continuous, non-continuous, or mixed types. Tasks at this level require respondents to make matches between the text and information, and may require paraphrasing or low-level inferences. Some competing pieces of information may be present. Some tasks require the respondent to cycle through or integrate two or more pieces of information based on criteria; compare and contrast or reason about information requested in the question; or navigate within digital texts to access and identify information from various parts of a document.

Description of PIAAC numeracy discrete achievement levels

Achievement level and score range	Task descriptions
Below Level 1 0 - 175	Tasks at this level require the respondents to carry out simple processes such as counting, sorting, performing basic arithmetic operations with whole numbers or money, or recognizing common spatial representations in concrete, familiar contexts where the mathematical content is explicit with little or no text or distractors.
Level 1 176 - 225	Tasks at this level require the respondent to carry out basic mathematical processes in common, concrete contexts where the mathematical content is explicit with little text and minimal distractors. Tasks usually require one-step or simple processes involving counting, sorting, performing basic arithmetic operations, understanding simple percents such as 50%, and locating and identifying elements of simple or common graphical or spatial representations.
Level 2 226 - 275	Tasks at this level require the respondent to identify and act on mathematical information and ideas embedded in a range of common contexts where the mathematical content is fairly explicit or visual with relatively few distractors. Tasks tend to require the application of two or more steps or processes involving calculation with whole numbers and common decimals, percents and fractions; simple measurement and spatial representation; estimation; and interpretation of relatively simple data and statistics in texts, tables and graphs.

Description of PIAAC problem solving in technology-rich environments (PS-TRE) discrete achievement levels

Achievement level and score range	Task descriptions
Below Level 1 0 - 240	Tasks are based on well-defined problems involving the use of only one function within a generic interface to meet one explicit criterion without any categorical or inferential reasoning, or transforming of information. Few steps are required and no sub-goal has to be generated.
Level 1 241 - 290	At this level, tasks typically require the use of widely available and familiar technology applications, such as e-mail software or a web browser. There is little or no navigation required to access the information or commands required to solve the problem. The problem may be solved regardless of the respondent's awareness and use of specific tools and functions (e.g. a sort function). The tasks involve few steps and a minimal number of operators. At the cognitive level, the respondent can readily infer the goal from the task statement; problem resolution requires the respondent to apply explicit criteria; and there are few monitoring demands (e.g. the respondent does not have to check whether he or she has used the appropriate procedure or made progress towards the solution). Identifying content and operators can be done through simple match. Only simple forms of reasoning, such as assigning items to categories, are required; there is no need to contrast or integrate information.

APPENDIX B

METHODOLOGY

Included throughout this report are short examples and quotations from key informants who have on-the-ground experience of these issues. These researchers, practitioners, and other leaders in the adult education and workforce development fields were interviewed as part of this project, or completed an informal survey conducted by NSC.

Original data analysis for this report was conducted by researchers from the American Institutes for Research (AIR). The analysis was excerpted and adapted for this report by National Skills Coalition.

AIR researchers used data from the U.S. 2012/2014 Program for the International Assessment of Adult Competencies (PIAAC) to conduct frequency distribution analyses for a number of variables related to demographic characteristics, English language proficiency status, recent education and training activities, and labor force characteristics of adults aged sixteen to sixty-four. Below is a description of variables and analytic methods used in the analysis.

1. Defining target population of service sector workers

To define the target population for the analysis, the following criteria were used:

- (a) Individuals aged sixteen to sixty-four (AGE_R variable is used), and
- (b) Individuals who are currently employed (C_D05 is used), and
- (c) Individuals who work in the retail, accommodations and food services, or health and social work (ISIC1C variable is used; G=retail, I=accommodations and food services, Q=health and social work), and
- (d) Individuals who work in non-high skill occupations (ISCOSKIL4 is used), and
- (e) Individuals who performed at a low level on the assessments (those who performed at Level 2 or below for the literacy and numeracy scales and at Level 1 or below for the PS-TRE scale).

Comparisons were made among all employed adults in non-high skill occupations aged sixteen to sixty-four across all industries who performed low on the assessments.

2. Analytic methods

The frequency distribution for each variable was computed separately based on the respondents with valid data. If there were any missing data for any given variable, the percentages were calculated using the valid N size. The weighted number of respondents with missing data were computed and presented in the results tables.

Missing data could be present due to various reasons. For example, some respondents were not administered certain items because of the PIAAC Background Questionnaire routing logic. Or in some cases, it is possible that respondents simply chose not to answer. Regardless of reasons for the missing data, they were treated in the same way for the purpose of this analysis. For all analyses, the appropriate sampling weights and replicate weights were used to calculate percentages and sample size (i.e. valid and missing N size). All ten plausible

values were used to determine proficiency level for each individuals using the STATA macro created for PIAAC analysis. All analyses were conducted using the STATA program.

All analyses were replicated by another analyst using independent STATA syntax code to prepare the data files (e.g. recoding existing variables, collapsing response categories of existing variables, deriving new variables) and calculate percentages, valid N size, and missing N size for each variable. Then, the results between the two analysts were compared for accuracy and consistency.

3. Variables used for analysis

In some cases, the OECD-derived variables were used. In other cases, AIR computed new variables using multiple related variables from the data file.

(a) Derived variables or variables with categories collapsed

Highest level of education attainment (EDCAT6): Derived by OECD based on the question “What is the highest level of education you have completed?” and a follow-up question whether they completed a foreign degree. The “High school credential” category includes (a) those with high school diploma, pre-associate education, (b) those attended trade school, college, or university but did not receive certificate or degree, and (c) those received certificate from a college or trade school for completion of a program prior to the associate/bachelor’s degree.

Race/ethnicity (RACETHN_5CAT): Derived by NCES based on the questions “Which of the groups on this card best describes you? Choose one or more.” and “Are you Hispanic or Latino?” questions. Asian and Native Hawaiian or other Pacific Islander are combined. Other races including American Indian or Alaska Native are combined.

Earning (EARNMTHALLDCL): Derived by a PIAAC Consortium member using various income questions. It is based on monthly earning including bonuses for wage and salary earners and self-employed in deciles. AIR collapsed the ten categories into five.

Bottom quintile: lowest and 9th decile

Lower middle quintile: 8th and 7th deciles

Middle quintile: 6th and 5th deciles

Upper middle quintile: 4th and 3rd deciles

Top quintile: 2nd and highest decile

First language learned and understood (LNG_L1US_C): Derived by NCES based on the question “What is the language that you first learned at home in childhood and still understand?”

Age learned English (Language): Derived by NCES by combining “What is the language that you first learned at home in childhood and still understand? and “How old were you when you learned to speak English?”

Language most often spoken and home (LNG_HOMEUS_C): Derived by NCES based on the question “What language do you speak most often at home?”

Level of education needed for new applicants to get current job (D_Q12AUS): see EDCAT6 variable description above.

In your current job, how often do you usually: For five variables related to the frequency of activities in respondent's current job (G_Q01A: read directions or instructions; G_Q01B: read letters, memos, or e-mails; G_Q02A: write letters, memos, or e-mails; G_Q02D: fill in forms; G_Q03B: calculate prices, costs or budgets), five response categories were collapsed into three: (a) never and less than once a month, (b) less than once a week but at least once a month and at least once a week but not every day, and (c) every day.

(b) Variables constructed by AIR team

Studied for formal degree/certificate in the past year (including currently studying): Classified respondents as studying in the past year if (a) they reported completing their highest qualifications twelve months or less ago, (b) they responded "Yes" to "Are you currently studying for any kind of formal degree or certificate?", or (c) they responded "Yes" to "During the last twelve months, that is since ^MonthYear, have you studied for any formal degree or certificate, either full-time or part-time?" In all cases, AIR used variables that were corrected for U.S. routing when available and/or applicable.

Level of education currently studying for/studied for in past year: Based on the variable described above (studied for formal degree/certificate in past year including those who are currently studying), the level of education was derived by taking the highest of (a) the highest level of education completed if respondents reported that they completed it during the past twelve months, (b) type of degree/certificate they are currently studying for, and (c) type of degree/certificate studied for during past twelve months. For detailed description of the level of education, see EDCAT6 variable above.

Years working with current employer: Derived by subtracting the year the respondents started working for their current employers from the year of the survey interview. The number of years was collapsed into five categories (two years or less, three to five years, six to fifteen years, sixteen to twenty-five years, and twenty-six years or more).

ENDNOTES

- 1 This number is drawn from our analysis of data from the Survey of Adult Skills. See “Where does our data come from?” below for additional information about this data source.
- 2 These numbers are drawn from the U.S. Bureau of Labor Statistics, 2014. Note that the BLS uses a very expansive definition of the service sector overall; these numbers reflect only the sub-sectors listed in the narrative above. View source data: www.bls.gov/emp/ep_table_201.htm
- 3 See, e.g., Profiles of the Retail Workforce and Retail Action Project (Aspen Institute): www.aspenwsi.org/wordpress/wp-content/uploads/Profiles-of-the-Retail-Workforce-and-the-Retail-Action-Project.pdf
- 4 Learn more about the Program for the International Assessment of Adult Competencies (PIAAC) at www.piaacgateway.com.
- 5 Our analysis looks in particular at individuals who are working in the service sector, encompassing the three sub-sectors of retail; accommodation and food service; and health and social work. The analysis is focused on individuals who are working in the first, second, or third level of PIAAC’s four occupational categories, excluding those at the fourth and highest level. Finally, we focused on individuals who scored at the lower levels of PIAAC’s assessments: Level 2 or below for literacy; Level 2 or below for numeracy, and Level 1 or below for digital problem-solving skills, known in the PIAAC as “problem-solving in technology-rich environments.”
- 6 A full 1 in 5 PIAAC respondents (20%) did not even participate in the portion of the test that assessed their technology skills, so the 73% number above is effectively an understatement. There are three potential reasons for nonparticipation: lack of any computer experience; outright refusal to take the assessment; and failure to pass the initial computer skills screening test (which requires successfully completing four of six simple tasks, such as using a mouse and highlighting text on the screen). Respondents’ reasons for not participating in the technology portion of the PIAAC were evenly divided among these three categories. Note: The population for this variable does not include those who did not have valid assessment scores for any domain due to literacy-related non-response (inability to speak or read the language of the assessment, difficulty reading or writing, or learning or mental disabilities) and of course does not include individuals with the highest-skill occupations, as explained earlier in this report.
- 7 Unless otherwise noted, all statistics in this report refer to service-sector workers with low literacy skills. In most cases, there were no statistically significant differences between these individuals and those with low numeracy or digital problem-solving skills.
- 8 In this case, small- to mid-sized refers to companies of between 1 and 250 employees. Typically, this definition would be broader, including companies of up to 999 employees, but unfortunately the PIAAC data on individuals employed in these larger companies was not reliable enough to include in this analysis due to higher margins of error.
- 9 The exact question asked was: Did an employer or prospective employer pay for tuition or registration, exam fees, expenses for books or other costs associated with your studying for this degree [or participation in this activity]?
- 10 Learn more about COHS and its certificates: <http://www.careeronlinehs.org/program/#tab-2>
- 11 Learn more about I-BEST: www.sbctc.edu/colleges-staff/programs-services/i-best/
- 12 See, e.g., How I-BEST Works: Findings From a Field Study of Washington State’s Integrated Basic Education and Skills Training Program (Community College Research Center, 2011), viewable at: <http://ccrc.tc.columbia.edu/publications/how-i-best-works.html>
- 13 Learn more in NSC’s Sector Partnerships Policy Toolkit, available at: www.nationalskillscoalition.org/resources/publications/file/Final-Sector-Partnership-Policy-Toolkit-1.pdf
- 14 Learn more about state IET policies in NSC’s Integrated Education and Training Toolkit, available at www.nationalskillscoalition.org/state-policy/skills-equity
- 15 This number is drawn from our analysis of data from the Survey of Adult Skills. See “Where does our data come from?” for additional information about this data source.
- 16 These numbers are drawn from the US Bureau of Labor Statistics, 2014. Note that the BLS uses a very expansive definition of the service sector overall; these numbers reflect only the sub-sectors listed in the narrative above. View source data: www.bls.gov/emp/ep_table_201.htm
- 17 See, e.g., Profiles of the Retail Workforce and Retail Action Project (Aspen Institute): www.aspenwsi.org/wordpress/wp-content/uploads/Profiles-of-the-Retail-Workforce-and-the-Retail-Action-Project.pdf
- 18 Data reflects median hourly wages, as reported by the US Bureau of Labor Statistics: www.bls.gov/oes/current/oes_nat.htm
- 19 Learn more about the Program for the International Assessment of Adult Competencies (PIAAC) at www.piaacgateway.com.
- 20 PIAAC data on respondents’ occupations is classified by 4-digit ISCO occupational codes, of which there are more than 400. Given the relatively small sample size in the PIAAC, analyzing responses at this level of detail would not have been reliable nor meaningful. Instead, NSC used a variable that collapses the data into four derived categories: high-skilled occupations; semi-skilled white-collar occupations; semi-skilled blue-collar occupations; and elementary occupations. Respondents in high-skilled occupations were excluded from the entire dataset.
- 21 Descriptions for each of the PIAAC levels used in this analysis are located in Appendix A.
- 22 The research term selected Level 1 or below as the cutpoint for the Problem solving in Technology-Rich Environments scale because it was the most comparable cutpoint and skill level to Level 2 or below for literacy and numeracy scales. On average across OECD countries, those individuals who scored at Level 1 or below on the PS-TRE scale also scored at Level 2 or below in literacy and numeracy scales.
- 23 Note that this number includes individuals who are not in the labor force. Source: Migration Policy Institute tabulation of US Census Bureau data: www.migrationpolicy.org/data/state-profiles/state/language/US
- 24 A full one in five PIAAC respondents (20%) did not even participate in the portion of the test that assessed their technology skills, so the 73% number above is effectively an understatement. There are three potential reasons for nonparticipation: lack of any computer experience; outright refusal to take the assessment; and failure to pass the initial computer skills screening test (which requires successfully completing four of six simple tasks, such as using a mouse and highlighting text on the screen). Respondents’ reasons for not participating in the technology portion of the PIAAC were evenly divided among these three categories. Note: The population for this variable does not include those who did not have valid assessment scores for any domain due to literacy related non-response (inability to speak or read the language of the assessment, difficulty reading or writing, or learning or mental disabilities) and of course does not include individuals with the highest-skill occupations, as explained earlier in this report.
- 25 Unless otherwise noted, all statistics in this report refer to service sector workers with low literacy skills. In most cases, there were no statistically significant differences between these individuals and those with low numeracy or digital problem solving skills.

- 26 Migration Policy Institute analysis of 2014 US Census Bureau data. United States Data Profile: Workforce. Viewable at www.migrationpolicy.org/data/state-profiles/state/workforce/US
- 27 The equivalent numbers are virtually identical for workers with low numeracy skills, and slightly worse for those with low technology-related skills.
- 28 Statistics reflect the 2012-13 academic year. Source: Fast Facts: Students with Disabilities (National Center for Education Statistics). Viewable at: <https://nces.ed.gov/fastfacts/display.asp?id=64>
- 29 The State of Learning Disabilities, 3rd Ed. (National Center for Learning Disabilities, 2014). Viewable at: <https://www.nclad.org/wp-content/uploads/2014/11/2014-State-of-LD.pdf>
- 30 See, e.g., Hernandez, D. J., & Napierala, J. S. Mother's education and children's outcomes: How dual-generation programs offer increased opportunities for America's families. (Foundation for Child Development, 2014).
- 31 See, e.g., Cramer, Joshua. From Theory to Outcomes: NCFL's Two-Generation Movement for Families (National Center for Families Learning, 2016). Viewable at: http://familieslearning.org/pdf/NCFL_Theory-to-Outcomes-brief-2016.pdf.
- 32 It is important to note that not all individuals with limited English are immigrants. In particular, the U.S. mainland is home to more than 5 million Puerto Ricans, who are U.S. citizens by birth but may speak Spanish as their first language. Conversely, of course, not all immigrants have limited English skills – either because they are native English speakers, or because they have already become fluent.
- 33 In this case, small to mid-sized refers to companies of between one and 250 employees. Typically, this definition would be broader, including companies of up to 999 employees, but unfortunately the PIAAC data on individuals employed in these larger companies was not reliable enough to include in this analysis due to higher margins of error.
- 34 NSC's analysis suggests that low-skilled workers may have longer-term employment on average than workers as a whole. Data from the Bureau of Labor Statistics indicate that the median length of time that US workers have been with the same employer is 2.0 years for accommodations and food service workers, 3.0 years for retail trade workers, and 3.9 years for healthcare and social assistance workers. Notably, the BLS data includes workers at all occupational levels, and does not exclude high-skilled occupations as NSC's analysis did. Source: www.bls.gov/news.release/pdf/tenure.pdf
- 35 For this question, NSC used a derived PIAAC variable that divides respondents' monthly earnings into five quintiles.
- 36 Throughout this section, "regularly" refers to workers who said that they do a task every day, at least once a week, or at least once a month.
- 37 There is no overlap between these categories. That is, "At least once a week" refers to people who learn new things at least once a week but not every day.
- 38 Again, it is possible that some workers replied "yes" to more than one of these questions, so the above numbers should not be combined.
- 39 The exact question asked was: During the last twelve months, have you attended any organized sessions for on-the-job training or training by supervisors or co-workers?
- 40 The exact question asked was: Did an employer or prospective employer pay for tuition or registration, exam fees, expenses for books or other costs associated with your studying for this degree [or participation in this activity]?
- 41 While the term "open education" is not widely used in the US, it is more common in some of the other countries participating in the PIAAC study, such as the United Kingdom.
- 42 This arrangement is known as a labor-management partnership (LMP). However, not all sector partnerships are LMPs.
- 43 Source: http://besthtc.org/?page_id=301
- 44 Learn more about HPOG apprenticeship programs: www.acf.hhs.gov/sites/default/files/ofa/health_profession_opportunity_grants_and_registered_apprenticeship.pdf
- 45 Learn more about the initiative: <https://immigrationforum.org/blog/new-project-helps-immigrant-workforce-thrive/>
- 46 Learn more about Archways to Opportunity in this annual report: <http://www.archwaystoopportunity.com/ProgressReport.pdf>
- 47 Learn more about COHS and its certificates: <http://www.careeronlinehs.org/program/#tab-2>
- 48 Learn more about the VWCC/Goodwill program: www.aspenwsi.org/wordpress/wp-content/uploads/WorkingTogetherMakingDifference.pdf
- 49 Learn more about I-BEST: www.sbctc.edu/colleges-staff/programs-services/i-best/
- 50 See, e.g., How I-BEST Works: Findings From a Field Study of Washington State's Integrated Basic Education and Skills Training Program (Community College Research Center, 2011), viewable at: <http://ccrc.tc.columbia.edu/publications/how-i-best-works.html>
- 51 Learn more about I-Best at Work: www.sbctc.edu/resources/documents/about/task-forces-work-groups/aeac/2016-july/i-best-at-work-issue-brief.pdf
- 52 Learn more about Friendly House's workforce development programs: <http://www.friendlyhouse.org/workforce-development> and about the International Institute's program: www.iimn.org/classes/hotel-housekeeping-training-employment-program/
- 53 The program also served home health aides, as highlighted in this article: www.wearoneamerica.org/sites/wearoneamerica.org/files/Insight-Magazine_Fall2012-EXCERPT.pdf
- 54 Source: www.buildingskills.org/programs/greenjanitor/
- 55 Learn more about Beth Israel's work in this slide presentation: www.nelrc.org/docs/Employer%20Engagement.pdf
- 56 Case study of the Beth Israel pipeline program: <http://beltline.org/wp-content/uploads/2013/07/beth-israel-case-study.pdf>
- 57 Learn more about ADVANCE: <http://www.buildingskills.org/programs/advance/>
- 58 Research demonstrates that attaining US citizenship is associated with an 8-11% increase in wages.
- 59 Learn more about the New American Workforce project: <http://immigrationforum.org/programs/new-american-workforce/> and employers who offer the payroll deduction: www.npr.org/2014/12/25/373128405/employers-help-legal-immigrants-on-path-to-citizenship
- 60 These policy proposals are described in more detail in National Skills Coalition's Skills for Good Jobs, viewable at: www.nationalskillscoalition.org/resources/publications/file/Skills-for-Good-Jobs-Agenda.pdf
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- 62 Learn more in NSC's Sector Partnerships Policy Toolkit, available at: www.nationalskillscoalition.org/resources/publications/file/Final-Sector-Partnership-Policy-Toolkit-1.pdf
- 63 Learn more about state IET policies in NSC's Integrated Education and Training Toolkit, available at www.nationalskillscoalition.org/state-policy/skills-equity
- 64 Learn more about financial aid policies in NSC's Job-Driven Financial Aid Toolkit, available at <http://www.nationalskillscoalition.org/state-policy/skills-equity>
- 65 Learn more about state stackable credential policies in NSC's Stackable Credential Toolkit, available at www.nationalskillscoalition.org/state-policy/skills-equity
- 66 More information about state policies on work-based learning will be available in NSC's forthcoming policy scan and toolkit on this issue, to be published in 2017.



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