



# Meet the out-of-work

*Local profiles of jobless adults and strategies to connect them to employment*

**By Martha Ross and Natalie Holmes**

June 2017

## Introduction

Imagine a divorced 50-something white woman who used to work as a teacher's aide, a 30-year-old black man who lives with his mother after losing his warehouse packing job, and a 25-year-old Latina single mother with very little work experience. They may not have a lot in common, but all belong to a category we call the "out-of-work population." Their experiences illustrate the varied backgrounds and circumstances of out-of-work individuals, and they are a few of the composite personas developed as part of a novel way of defining and understanding this population, described in further detail in this report.

In the American popular consciousness, the challenge of finding work lies somewhere between the statistical and the stereotypical. At one extreme, it is embodied by the U.S. national unemployment rate churned out each month by the federal Bureau of Labor Statistics and plastered on the front page of newspaper business sections as a key indicator of the economy's health. At the other extreme lie stories of long-term joblessness plaguing poor black Americans in cities, or poor white Americans in small towns who become invisible to official unemployment counts when they drop out of the labor force.

These approaches obscure the varied and complicated nature of the labor market challenges facing out-of-work individuals around the country. Even amidst a prolonged economic expansion with a low national unemployment rate, jobs are not always available and not everyone who wants work can find it. Job availability and community demographics vary markedly around the country, yielding diverse local populations wanting or needing work.

Meanwhile, local officials in the public, private, and social sectors find themselves on the front lines of connecting job seekers to employment opportunities. These officials must set priorities

and make workforce investments against a backdrop of economic and social forces that do not always lend themselves to local policy levers or quick fixes. Yet they do not always have good data on who needs help or evidence on what works best for those individuals. Nevertheless, local leaders are often positioned best to address the labor market realities facing their residents, and in many cases they are doing pathbreaking work.

This report and accompanying interactive data tool aim to both deepen the conversation about out-of-work Americans and support local officials in their effort to help these individuals find jobs. To do so, these resources provide a unique perspective on adults ages 25 to 64 who are out-of-work in each of 130 large cities and counties across the United States. This view segments the out-of-work population into distinct categories that reflect some of the multidimensional challenges out-of-work individuals face, based on factors such as educational attainment, age, work history, disability, English language proficiency, and family status. The report and tool then provide information on effective workforce development practices that may be appropriate for these groups, to help local officials, funders, and

other stakeholders develop, strengthen, or diversify strategies to connect their residents to employment.

The report proceeds in four additional sections. First, it discusses how we define the out-of-work population for purposes of this analysis and briefly explains how we segmented that population into groups of individuals who may face similar challenges finding employment. Second, it introduces seven major groups of out-of-work Americans that result from the analysis, including fictionalized personas that provide a few examples of the types of people in each of those groups. Third, it provides an overview of eight categories of evaluated and promising approaches for connecting adults to jobs, in turn detailing which approaches are

most relevant to each of the out-of-work groups. Fourth, it concludes with recommendations on how local leaders can best use these resources, and thoughts on their importance in an uncertain economic and federal policy climate.

A forthcoming analysis will provide similar information on the population ages 18 to 24 across the 130 study jurisdictions. Although there is not a bright line separating 24-year-olds from 25-year-olds, many funding streams and programs are designed for teens and young adults up to age 21 or 24. In consideration of these practical realities, we separate young adults from the larger adult population for both the data analysis and review of workforce programs.

For detailed data on each jurisdiction, please [visit the interactive webpage](#).

---

Even in the midst of a prolonged economic expansion, jobs are not always available and not everyone who wants work can find it... Local leaders are on the front lines of connecting job seekers to employment opportunities and are often best-positioned to address local labor market realities.

---

## Defining and understanding the out-of-work population

*For a detailed discussion of all methods and data sources, see the technical appendix.*

This report seeks to provide useful information on local out-of-work populations in the United States. Detailed data on job seekers are typically available for only large geographies such as the nation or states, because of sample size issues. Data related to employment in smaller areas, such as counties and cities, usually offer only blunt measures such as the local unemployment rate or counts of participants in specific programs including unemployment insurance or cash assistance who cannot be assumed to represent the broader out-of-work population. Moreover, not everyone without a job needs or wants the same kind of assistance, if any at all.

Mindful of the shortcomings of existing data for local geographic areas, we set out to better understand out-of-work populations at the local level. The first questions we faced centered on the difference between “unemployment” and lack of employment. Unemployed individuals include people without a job who have actively looked for work in the past four weeks. However, there are typically a much larger number of individuals who do not have jobs and have *not* actively looked for work during that time period. Members of the latter group are described as “not in the labor force.”

Some groups of individuals who are not in the labor force have attracted increasing attention recently, as the labor force participation rate (the share of adults working or looking for work) has declined. The decline raises concern that the economy is on shakier footing than the nation’s relatively low unemployment rate indicates. The decline in labor force participation among prime-age adults (ages 25 to 54), particularly men and people with no more than a high school diploma, is especially troubling, since workers are typically at their most productive in these years and reduced work effort has negative

implications for both individual and societal economic well-being.<sup>1</sup>

However, those not in the labor force are a heterogeneous group of people, doing different things with their time and with different motivations for not working or seeking employment. Many devote their energy and time to activities such as raising children or going to school. Others are retired or may have disabilities that preclude employment. Still others may have more serious barriers to employment such as a criminal background, addiction, or lack of legal immigration status, attributes that are more difficult to observe in publicly available data.

---

The question of who is out of work has attracted increasing attention recently, as the labor force participation rate (the share of adults working or looking for work) has declined.

---

**Ultimately, we seek to limit our inquiry to those individuals who stand to benefit most from workforce development assistance, based on the following questions:**

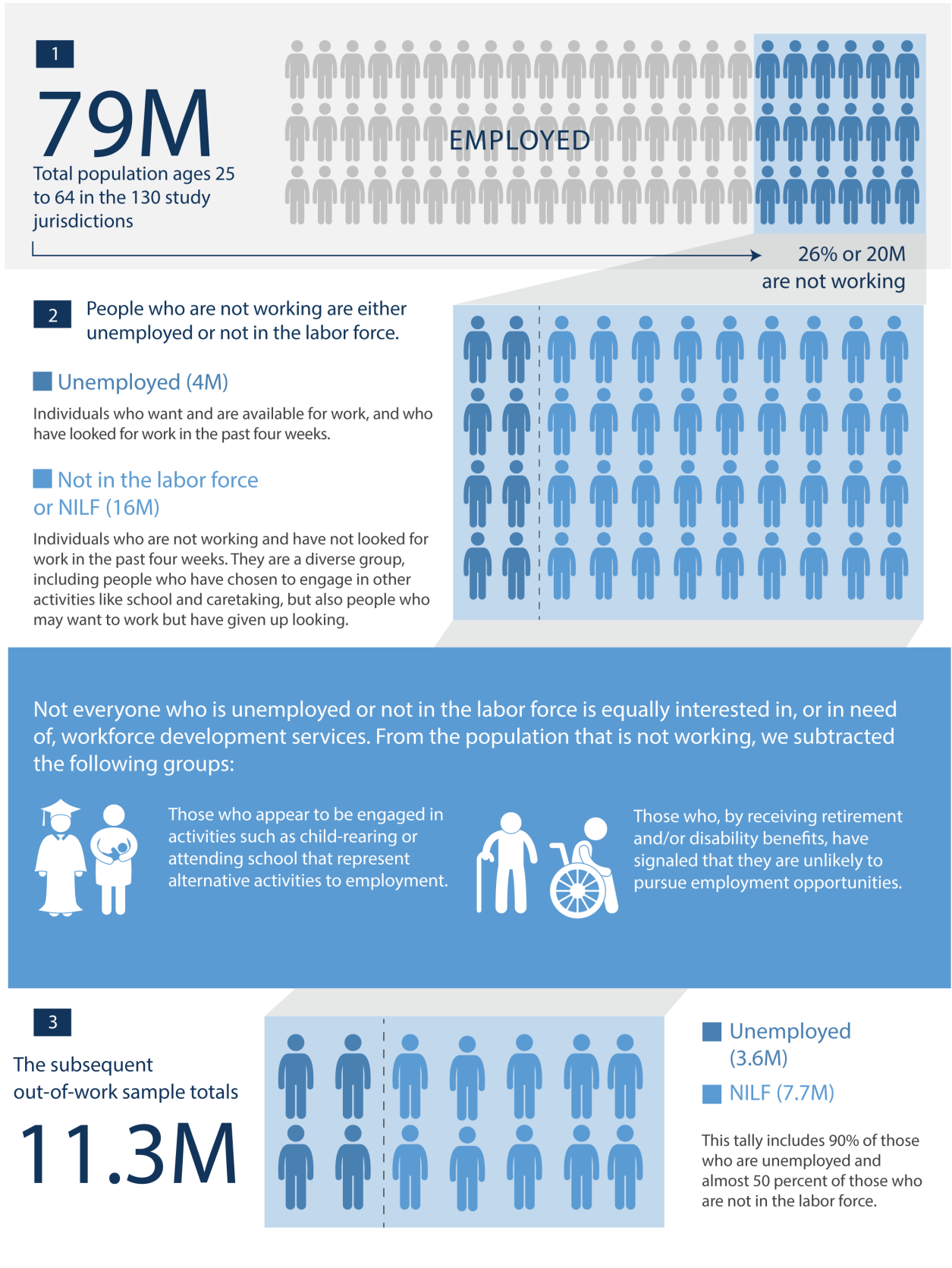
- Who is most likely to do better in the labor market with additional skills and education?
- Who is not obviously engaged in activities, such as child rearing or attending school, that represent alternatives to employment?
- In the context of limited resources to assist jobless individuals, whom are local officials likely to prioritize?

We base our analysis on data from the U.S. Census Bureau's American Community Survey (ACS), which annually surveys approximately 3.5 million households about a variety of demographic, social, and economic characteristics. Specifically, we use ACS Public Use Microdata Samples (PUMS), which are the anonymized person-level responses to the survey. We pool three single years of data, 2013-2015, to increase sample size, and adjust weights according to year-on-year changes in population. We also focus our analysis on local jurisdictions (cities and counties) that have at least 500,000 residents, as those places contain enough individuals surveyed through the ACS to maintain confidence in estimates we derive from the microdata.

From the ACS, we seek to identify not only unemployed individuals, but also those who would like to work, even if they haven't searched in the past month. We therefore combine those who identify as unemployed with those not actively seeking work, while subtracting the following groups:

- "Traditional" students (which we define as all students not in the labor force and any college students living in dormitories), as well as all graduate and professional students, on the assumption that they are already on a path to better employment opportunities. The only students who are included are those who are unemployed, not living in campus housing, and enrolled in undergraduate or training courses.
- People receiving Social Security, Supplemental Security Income, or private retirement and disability benefits; these populations have very low rates of work and encompass individuals who may be eyeing retirement or considered permanently and totally disabled.
- Our best guess of stay-at-home parents who have chosen not to work, defined as a married not-in-the-labor-force individual with children whose spouse is employed and whose income is more than twice the applicable federal poverty threshold.<sup>2</sup>

**Figure 1. Defining the out-of-work population**



## About the places

We examined cities and counties because of the crucial role that local officials and leaders in the public, private, and social sectors play in workforce development. While labor markets are larger than the individual jurisdictions examined here, the smaller geographic footprints reflect administrative boundaries within which many funding, program, and policy decisions are made.

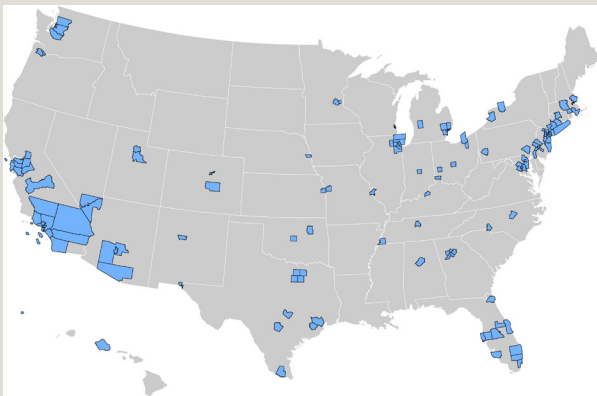
This analysis pertains to U.S. cities and counties with populations over 500,000. There are 130 such jurisdictions, which collectively account for about half (48 percent) of the nation's working-age population.<sup>3</sup> They include large cities with populations upwards of 1.5 million, such as Los Angeles, Chicago, Philadelphia, and Phoenix; midsize cities with populations ranging from 550,000 to 700,000, including Albuquerque, Milwaukee, Louisville/Jefferson County, and Nashville; and high-density suburban/urban counties with populations over 1 million near the core of large metropolitan areas

(Alameda, Calif.; Fulton County, Ga.). They also include counties with populations between 500,000 and 1 million. These are lower-density counties, some of which include small cities (Montgomery County, Ohio, encompassing Dayton; Anne Arundel County, Md., encompassing Annapolis), and some with more rural characteristics (Lancaster County, Pa.; Fresno County, Calif.). Although they all pass the 500,000 population threshold, in other words, they show substantial variation in size and other characteristics.

They represent both “winner-take-all”<sup>4</sup> metropolitan areas, including San Francisco, New York, and Boston, and those struggling with deindustrialization, the aftereffects of the housing bust and depressed consumer spending, and more generally with economic shifts favoring technology, innovation, and professional services. More than half are majority white; these are primarily counties, as well as a few cities. About a dozen jurisdictions are majority black or majority Latino, and the remainder are jurisdictions with no one racial or ethnic group in the majority. Their workforces span a continuum of educational attainment, including those with bachelor's degree attainment rates over 50 percent and those where less than one-quarter have a college degree. The share of adults who are working also varies widely across these jurisdictions, from 52 percent to 83 percent.

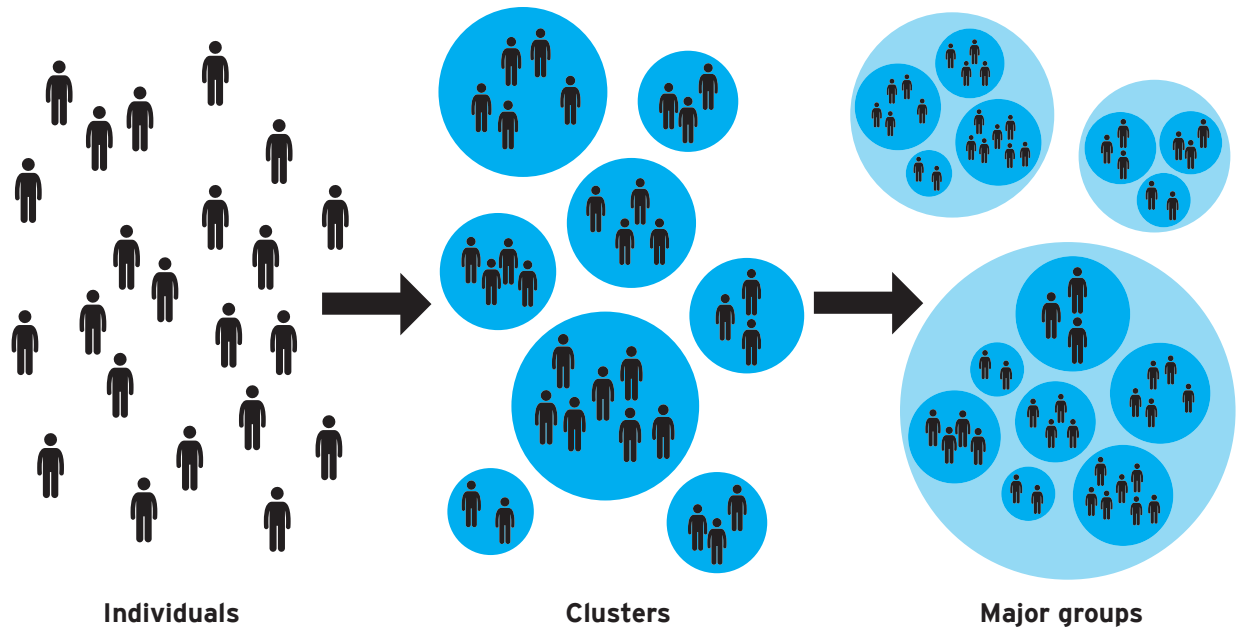
*Please see Appendix Table 1 for more summary information on the jurisdictions.*

**Figure 2. Map of study jurisdictions**





**Figure 3. Cluster analysis strategy**



Having identified the out-of-work population for purposes of this analysis, we seek to sort its members into groups that reflect their multidimensional needs, in a way that is useful to local workforce stakeholders.

## Cluster analysis

To do so, we use *cluster analysis*, a broad, flexible set of methods used to create meaningful groups of similar objects based upon user-defined characteristics. It is not a prescriptive methodology, and one handbook notes that cluster analysis should be “judged largely on its usefulness, rather than in terms of whether it is ‘true’ or ‘false.’”<sup>5</sup> Our conceptual aims in clustering are what another handbook calls “constructive,” rather than “realist,” which is to say “intend[ed] to split up the data into clusters for pragmatic reasons, regardless of whether there is some essential real difference between the resulting groups.”<sup>6</sup>

Our cluster analysis proceeds in two parts.<sup>7</sup> First, within each jurisdiction, we cluster out-of-work individuals according to their educational attainment, age, racial/ethnic minority status, English proficiency, status and severity of disability, recent work history, income relative to the poverty threshold, and whether they are caring for children under age 18 in their home—all characteristics associated closely with employment.<sup>8,9</sup>

Second, we aggregate the 828 jurisdiction-level clusters identified in the first step (between six and nine clusters per jurisdiction) across all places into *groups* of groups, according to educational attainment, age, racial/ethnic minority status, English proficiency, prevalence and severity of disability, work history, income, whether they are actively looking for work, whether they are caring for a child under 18 in their home, and area unemployment, labor force participation, and poverty rates.<sup>10</sup> These major groups allow us to compare patterns of out-of-work individuals across places and recommend



workforce programs and policies that literature suggests might benefit them, based on their observed characteristics.

As indicated earlier, some factors affecting employment are difficult to discern through available survey data on individuals' labor market characteristics. Workforce programs have identified a number of barriers to employment or particular populations requiring tailored services. The federal Workforce Innovation and Opportunity Act lists 14 such groups, including previously incarcerated people, people with disabilities, and older individuals.<sup>11</sup> Prior incarceration has significant negative labor market consequences<sup>12</sup> and is also associated with mental illness and addiction,<sup>13</sup> two additional factors that prevent individuals from gaining and keeping employment. Unfortunately, the ACS provides limited information on several barriers of interest to workforce practitioners, including criminal records. In fact, data on the ex-offender population are extremely limited.<sup>14 15</sup>

## Literature review of workforce assistance programs and practices

We relied on several sources to identify evaluations of workforce programs. We started with the literature reviews cited in a 2015 Mathematica Policy Research report, *Employment Strategies for Low-Income Adults Evidence Review: Standards and Methods*.<sup>16</sup> From the literature reviews listed in the paper, we compiled a list of programs that had been evaluated. Subsequently, and supported by the U.S. Department of Health and Human Services, Mathematica created a related website, the Employment Strategies for Low-Income Adults Evidence Review; once that website was completed, we cross-checked our list of programs against those featured on the website.

We also reviewed the following websites to identify programs: the Clearinghouse for Labor Evaluation and Research (CLEAR), maintained by the U.S. Department of Labor; Building Better Programs, maintained by the Center on Budget and Policy Priorities; and the What Works in Reentry Clearinghouse, maintained by the Council of State Governments.

To complement these searches, we solicited recommendations from practitioners and researchers who reviewed early presentations and drafts of the report. We also searched the proceedings of several recent conferences to identify related presentations; conferences included those sponsored by the National Association of Workforce Boards; the Office of Planning, Research, and Evaluation in the U.S. Department of Health and Human Services' Administration for Children and Families; and the Heartland Alliance.

---

To better understand the out-of-work population and identify strategies to connect them to employment, we use cluster analysis to create groups of similar individuals based on their demographic, social, and economic characteristics.

---

## Findings

### 1. The adult out-of-work population (ages 25 to 64) is disproportionately composed of people with low levels of education, limited work experience, limited English proficiency, and other well-recognized barriers to employment.

Most people support themselves and their families through employment, and this paper focuses on a population whose shared characteristic is that they are not working. Thus, the out-of-work population as defined in this analysis is more likely to be low-income and economically disadvantaged than the general population. Indeed, 37 percent of the sample lives in poverty, compared with 13 percent

among the general population ages 25 to 64, reflecting the central role that work plays in getting by in America.

The out-of-work population is more likely to face barriers to labor market success than the general population. Across the 130 study jurisdictions, its members have limited work experience (only 26 percent worked in the past year, compared with 79 percent of the total population ages 25-64), low levels of education (24 percent have less than a high school diploma, compared with 13 percent), and limited English proficiency (26 percent do not speak English well, compared with 16 percent).

**Table 1: Comparative descriptive statistics of universe and sample populations, 130 study jurisdictions**

	Non-institutionalized civilians 25-64	Sample population
<b>Worked in the past year</b>	79%	26%
<b>Highest level of school completed</b>		
Less than high school	13%	24%
High school (or equivalent)	23%	31%
Some college	20%	19%
Associate degree	8%	6%
Bachelor's degree	36%	20%
<b>Below poverty line</b>	13%	37%
<b>Male</b>	49%	36%
White	50%	40%
Black	14%	17%
Latino	24%	30%
Asian	10%	10%
All other races	2%	3%
<b>Nativity and English proficiency</b>		
Foreign-born	29%	36%
Limited English proficiency	16%	26%
<b>Reporting any disability</b>	9%	14%

Note: Race/ethnicity groups other than Latino are all non-Hispanic.

Source: Brookings analysis of 2013-2015 American Community Survey microdata

These figures vary considerably by place; for example, nearly 40 percent of the out-of-work population worked in the past year in Johnson County, Kan.; Seattle; Portland, Ore.; and Hamilton County, Ohio, while less than 20 percent did in Passaic County, N.J., and the Bronx. Levels of educational attainment and English proficiency among the out-of-work population vary similarly by locale.

Nonetheless, the out-of-work population is not uniformly disadvantaged. Some individuals, particularly those with higher levels of education and more recent work experience, and those in regions with tight labor markets and/or a prevalence of work that does not require a college degree, are probably experiencing temporary unemployment and are likely to find another position soon.

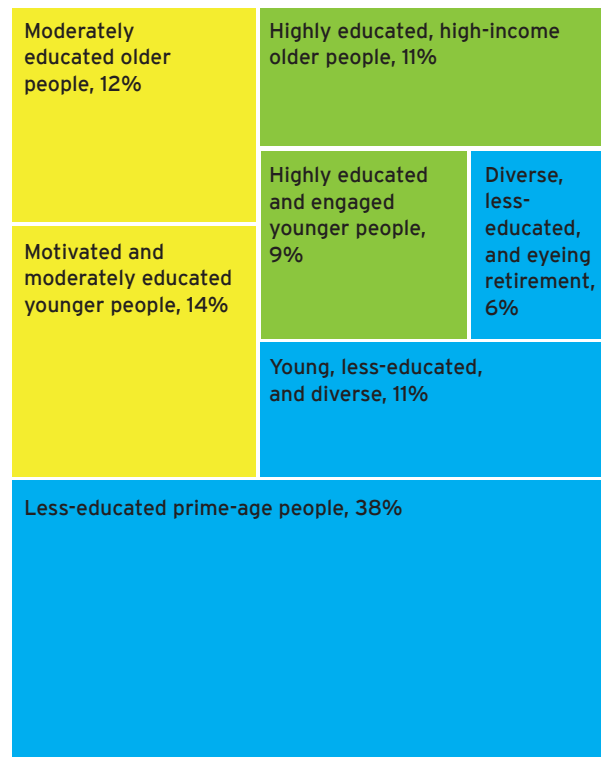
**2. The adult out-of-work population (25 to 64) can be segmented into seven major groups.**

Following the procedures described above, we identified a set of clusters for the out-of-work population in each of the 130 study jurisdictions, totaling 828 clusters. We then identified seven *major groups* of out-of-work individuals that together encompass those 828 clusters, which highlight major distinctions among these individuals relevant for workforce development strategy.<sup>17</sup> (Readers can learn more about the major groups at the jurisdiction level at the [interactive website](#).) Not all major groups are represented in all jurisdictions, and in some jurisdictions a major group encompasses more than one local cluster. For example, in Brevard County, Fla., we did not identify a significant population belonging to the major group comprising young people with high educational attainment. In Phoenix, we identified two clusters that belong to the same major group, characterized by low educational attainment and people in their prime working years; the clusters differ in that one contains all English language-learners while the other contains only people who speak English “very well.”

The major groups represent populations with distinct needs, although the same interventions may apply to multiple major groups.

Figure 4 and Table 2 show the relative sizes of these seven major groups, along with overall descriptive statistics. Groups in blue represent populations with no more than a high school diploma; those in yellow represent populations with some college, credential, or an associate degree; and those in green represent populations with a bachelor’s degree or higher. Within these educational attainment groups, the table is arranged (loosely) according to the typical age of individuals within the group. We discuss each major group in greater individual detail, including fictionalized representations of group members and some ways in which the groups differ across places. Groups are named for ease of reference according to their age and educational attainment distributions, as well as any other characteristics on which they deviate notably from the overall sample.

**Figure 4. Segments of the out-of-work population, 130 study jurisdictions**



**Table 2. Descriptive statistics of major groups of the out-of-work population, 130 study jurisdictions**

	Young, less-educated, and diverse	Less-educated prime-age people	Diverse, less-educated, and eyeing retirement	Motivated and moderately educated younger people	Moderately educated older people	Highly educated and engaged younger people	Highly educated, high-income older people
<b>Share of total</b>	11%	38%	6%	14%	12%	9%	11%
<b>25th percentile age</b>	27	37	56	29	46	29	48
<b>Median age</b>	30	45	59	33	55	34	56
<b>75th percentile age</b>	33	52	61	44	59	45	60
<b>Work effort</b>							
Actively searching	36%	28%	18%	46%	29%	42%	28%
Worked in the past year	27%	20%	17%	35%	26%	38%	29%
<b>Highest level of school completed</b>		<b>(Less-educated)</b>		<b>(Moderately educated)</b>		<b>(Highly educated)</b>	
Less than high school	41%	44%	43%	0%	0%	0%	0%
High school (or equivalent)	59%	56%	57%	0%	0%	0%	0%
Some college	0%	0%	0%	76%	73%	0%	0%
Associate degree	0%	0%	0%	23%	26%	0%	0%
Bachelor's degree	0%	0%	0%	1%	1%	100%	100%
<b>Income</b>							
Median family income	\$30,753	\$35,337	\$45,433	\$41,712	\$54,228	\$65,082	\$83,546
Receiving SNAP (food stamps)	46%	36%	26%	32%	22%	11%	9%
<b>Family</b>							
Married	35%	50%	59%	40%	56%	54%	67%
Caring for children under 18	45%	32%	4%	39%	16%	33%	15%
Caring for children under 6	31%	13%	0%	22%	5%	18%	5%
<b>Race/ethnicity</b>							
White	25%	30%	38%	41%	55%	49%	66%
Black	24%	17%	16%	22%	17%	10%	8%
Latino	44%	43%	30%	25%	17%	15%	10%
Asian	5%	8%	14%	8%	8%	23%	14%
All other races	3%	2%	2%	4%	3%	3%	2%
<b>Nativity and English proficiency</b>							
Foreign-born	35%	45%	47%	23%	22%	39%	29%
Limited English proficiency	29%	38%	39%	12%	12%	17%	14%
<b>Reporting any disability</b>	11%	16%	22%	12%	18%	6%	10%

Note: Race/ethnicity groups other than Latino are all non-Hispanic.

Source: Brookings analysis of 2013-2015 American Community Survey microdata

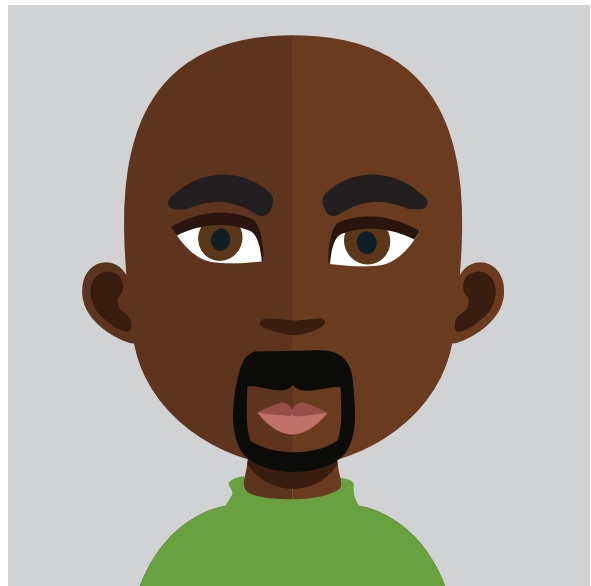
## Young, less-educated, and diverse: 11 percent

Fully 90 percent of this group is under age 35. It is the most racially and ethnically diverse of all groups (75 percent nonwhite), and has the highest rate of both caring for children in the household (45 percent) and single parents (20 percent). Many (31 percent) are caring for a child under age six. However, another fourteen percent are unmarried, childless individuals living in their parents' home—the highest rate of any group. Members of this group have completed at most high school, and 41 percent have not earned a high school diploma. Median family income for individuals in this group is \$30,753, the lowest of any group; and 58 percent are receiving some form of safety net support (e.g., Medicaid or SNAP). More than one-third (36 percent) are actively looking for work.

Fictionalized examples of individuals in this group include:



**Patricia** is a 25-year-old single mother who dropped out of high school when she became pregnant. She has never had a job, instead caring for her young children and several nieces and nephews. Now that her children are school-age, she is looking for work outside the home. She is not a citizen and speaks Spanish at home.



**Will** is a 30-year-old black man with a high school diploma who lost his warehouse packaging job nearly a year ago; he stopped looking for work several months ago. He is unmarried and recently moved back in with his mother.

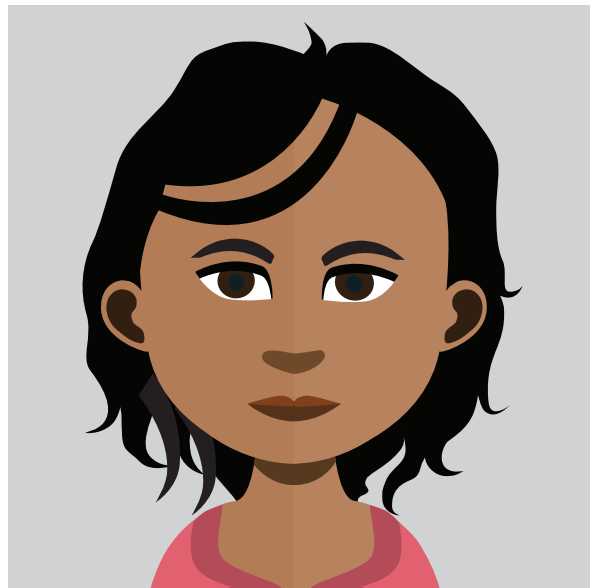
## Less-educated prime-age people; many English language-learners: 38 percent

Members of the largest group identified have at most a high school diploma or equivalent, and 44 percent did not complete high school. They are nearly all “prime age,” between 25 and 54 years old. The plurality is Latino (43 percent), and nearly half (45 percent) were born outside the United States—although two-thirds of all members are U.S. citizens. A large percentage speak English less than “very well” (38 percent) and over half (51 percent) speak a language other than English at home. At home, half are married and a third are supporting a child under 18 in their home, on relatively modest incomes: family median income is just \$35,337. Compared with other groups, this group shows moderate levels of interest in work: 28 percent are actively looking for a job, and just 20 percent worked in the past year.

Examples of individuals in this group include:



**Joseph** is a 51-year-old white man with a high school diploma. He last worked two years ago doing construction, and gave up looking for work about six months ago; construction has slowed down in his economically depressed area. He is single and lives with his brother and his family. He has access to a car.



**Carmen** is a 40-year-old married mother of high school-age children. A green card holder, she immigrated to the United States from Central America when she was very young, and never completed high school; she prefers to speak Spanish at home. She didn't work when her kids were younger, but has been thinking about looking for a job to help support the family, whose income is just above the poverty line.

## Diverse, less-educated, and eyeing retirement: 6 percent

Members of this group were least likely to be actively looking for work (18 percent), and were the least likely to have worked in the previous year (17 percent). Nearly all (96 percent) are 55 or older, so they might be eyeing retirement; as defined, however, they are not receiving retirement or disability benefits. They have the lowest rates of caring for children under 18 in their home (4 percent). Members of this group may have difficulty re-entering the workforce: they completed at most high school; they report the highest rates of disability of any group (22 percent); and just 61 percent speak English “very well,” the lowest rate of any group. Nearly half (47 percent) of this group were born outside the United States, although 73 percent of all members are U.S. citizens.

Examples of individuals in this group include:



**Lola** is a 61-year-old Filipina immigrant; she is not a citizen but is in the United States legally. She never completed secondary school and does not speak much English. She used to work as a hotel housekeeper, but stopped nearly 10 years ago as her vision deteriorated.



**Valentina** is a 58-year-old married former home care aide. She is a U.S.-born Latina with a high school diploma. She stopped working five years ago to help care for her grandchildren, who do not live with her.



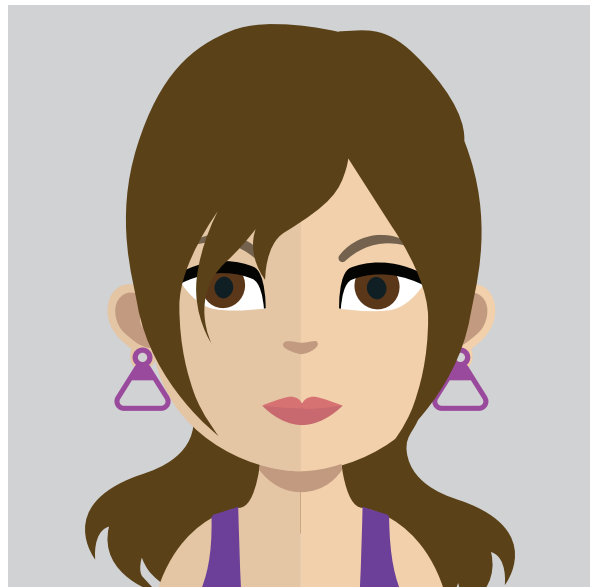
## Motivated and moderately educated younger people: 14 percent

This second-largest group has the highest rates of actively looking for work (46 percent) and the highest rates of school enrollment (8 percent) among all groups. Their median age is 33, but their age distribution is much broader than that of the “young, less-educated, diverse” major group; nearly all (99 percent) are in their prime working years. All those in school are “nontraditional” students: older college students not living in dormitories who are actively looking for work. All have completed at least some college or have at most an occupational certificate or associate degree. The majority of this group are native-born and English-speaking; they have the second-highest rate of caring for children under 18 (39 percent), about the same as the less-educated prime-age group.

Examples of individuals in this group include:



**Carlos** is a 42-year-old second-generation American, whose family is from Mexico. He is single. He dropped out of college after his first year, and since then has mostly worked as a sales representative and product promoter. He has not worked in the past 18 months while trying to get his retail business off the ground.



**Anna** is a 31-year-old white single mother of a young daughter. She recently worked as a home health aide, but quit and is looking for a job with hours that will accommodate her studies to become a licensed practical nurse. Food stamps and public assistance are meager, but they keep her afloat during this transition period.

## Moderately educated older people: 12 percent

Like the preceding group, all members of this group completed at least some college and at most an occupational certificate or associate degree. Over half (52 percent) are 55 or older, and the next quartile are over the age of 46. This group is overwhelmingly native-born, white, and English-speaking: 90 percent are citizens, 55 percent are non-Hispanic white, and 88 percent speak English very well. Perhaps related to their older-than-average age, an above-average share of this group reports some form of disability. They report moderate family incomes (\$54,228) and moderate work engagement relative to the other groups: 29 percent are looking for work and just over one-quarter (26 percent) have worked in the past year.

Examples of individuals in this group include:



**Jacqueline** is a 57-year-old white woman who left college after three years to get married and start a family. Five years ago she left her job as a teacher's aide to care for her parents, who have since passed away. She is divorced, and her grown children live across the country; she lives alone.



**Bernadette** is a 52-year-old black woman with an associate degree. She left her job as an office manager two years ago to recover from a serious car accident; she still has difficulty walking. She is now looking for similar work to help contribute to her and her husband's retirement.

## Highly educated and engaged younger people: 9 percent

Among all groups, members of this group were the most likely to have worked in the previous year (38 percent), and they have the second-highest rate of actively looking for work (42 percent). Members of this group are the least likely of any to report some form of disability. All members have at least a bachelor's degree and relatively high median family income (\$65,082). This group is predominantly white (49 percent) and Asian (23 percent); 39 percent were born outside the United States. Over half (54 percent) are married, and a quarter (26 percent) are married with children—the highest rate of any group.

Examples of individuals in this group include:



**Anika** is a 32-year-old newly minted biologist who moved to the United States from India six years ago to pursue a Ph.D. She did not work while she was in school, but is now looking for a job doing pharmacology research. She met her husband in graduate school and was recently naturalized.



**Doug** is a 43-year-old information technology systems manager who was laid off in the past year. He will look for work soon, but is not in a hurry; his wife works, and he would like to as well.

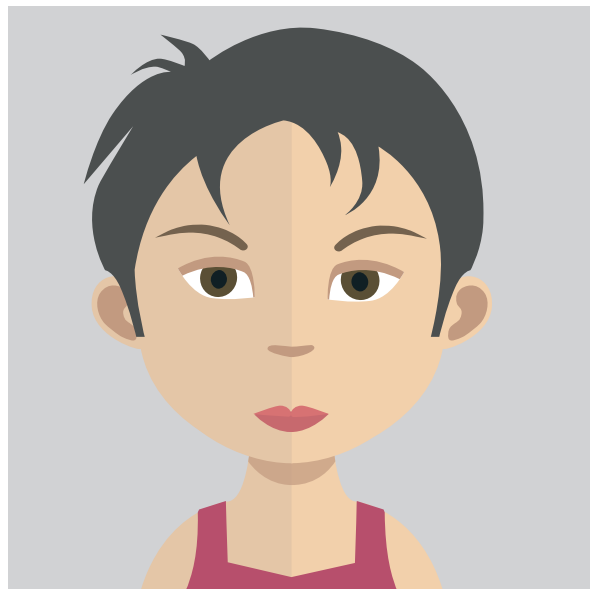
## Highly educated, high-income older people: 11 percent

This is the wealthiest group, reporting median family income of \$83,546. Two-thirds are married, the highest rate of any group, but few are caring for children (15 percent). It is also the least racially and ethnically diverse group (66 percent non-Hispanic white), and just 14 percent speak English less than very well. Twenty-nine percent were born outside the U.S., but like all members of the group, all of those possess a bachelor's degree or higher; 88 percent of all members are U.S. citizens. They show moderate interest in work, comparable to that of the largest group of less-educated prime-age workers, with 28 percent actively seeking employment.

Examples of individuals in this group include:



**Leonard** is a 54-year-old white man with a bachelor's degree who last worked three years ago as an accountant. He is not looking for work, as his wife's job can support them both, particularly given that they do not have children. He would like to work if the right opportunity came along.



**Moira** is a 57-year-old white woman with a bachelor's degree in speech pathology. She is married and has not worked in five years, unable to find a job where they moved for her husband's work. They do not have children.

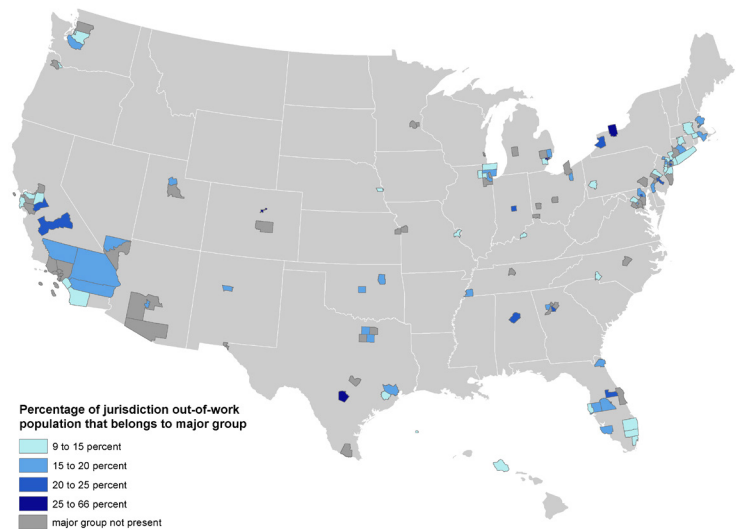
**3. The seven out-of-work groups distribute differently across places, reinforcing the need for customized local solutions.**

The major out-of-work groups we identified tend to locate in different kinds of places, which further suggests the importance of locally specific strategies to connect people to employment. There are some broad trends: among the places we examined, large cities are more likely than counties to have higher concentrations of both less-educated and highly educated out-of-work individuals. Places with higher unemployment rates are more likely to see more of the largest group (less educated, prime age). And places with higher population growth since 2010 are more likely to see the younger, highly educated group. Below, we discuss where each of the seven major groups is most likely to locate. Please see Appendix Table 2 for more details about how the groups distribute across places.

Jurisdictions with high concentrations of the “young, less-educated, diverse” group are mostly larger places, primarily outside the Midwest. Detroit is a notable exception: 66 percent of its out-of-work population belongs to this group. Areas with high shares of out-of-work individuals in this group tend to have lower rates of labor force participation and higher unemployment. They are also an interesting mix of some of the fastest-growing and slower-growing, or even declining, areas in terms of population.

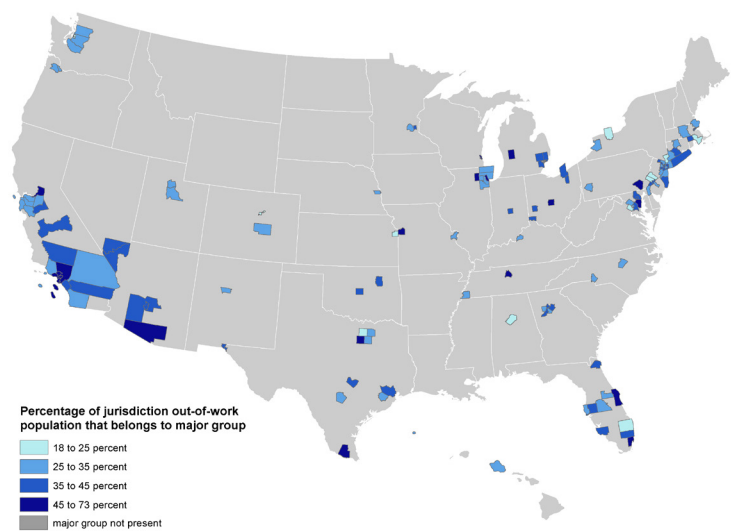
Concentrations of the “less-educated prime-age” group are highest in the Midwest, South, and West; apart from Lancaster County, Pa., none of the 10 places with the highest proportions of this group fall in the Northeast. In ten places (Hidalgo County, Texas; Los Angeles County, Calif.; Tarrant County, Texas; Franklin County, Ohio; Jackson County, Mo.; the city of Milwaukee, Wis.; Kent County, Mich.; Sacramento County, Calif.; Lancaster County, Pa.; and Pima County, Ariz.), this group makes up more than half of the entire out-of-work population.

**Figure 5a. Prevalence of the “young, less-educated, diverse” major group across 130 study jurisdictions**



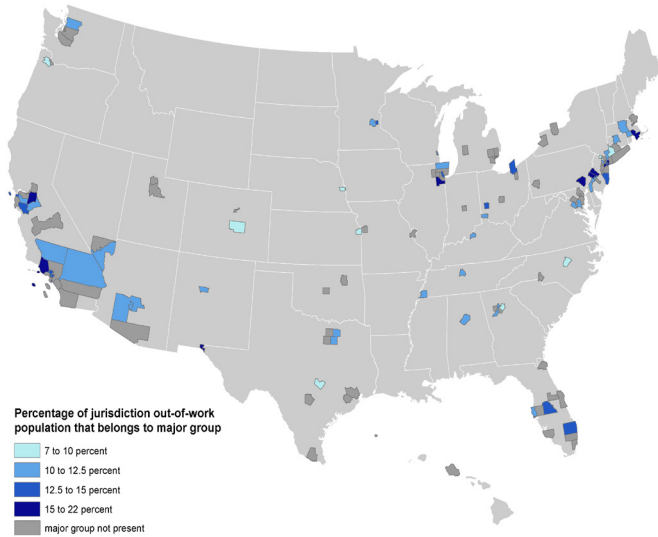
Source: Brookings analysis of 2013-2015 American Community Survey microdata

**Figure 5b. Prevalence of the “less-educated, prime-age” major group across 130 study jurisdictions**

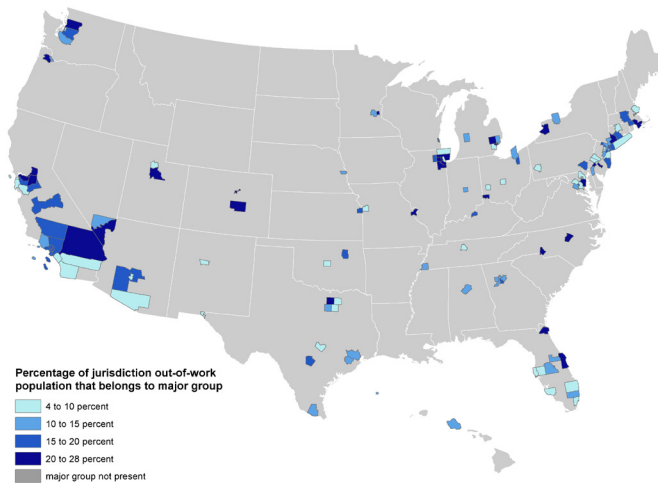


Source: Brookings analysis of 2013-2015 American Community Survey microdata

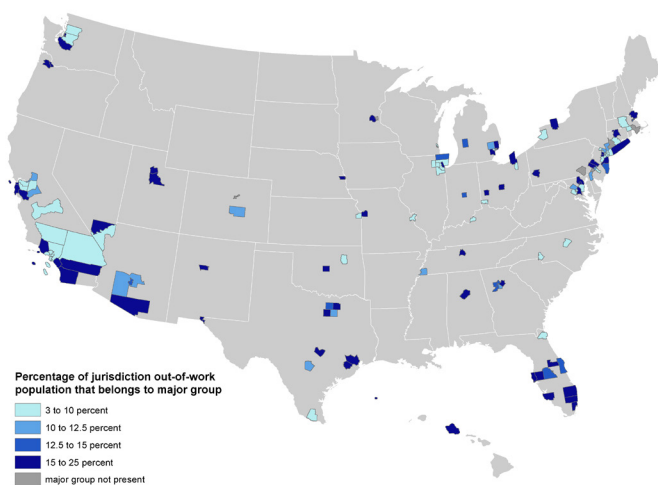
**Figure 5c. Prevalence of the “diverse, less-educated, eyeing retirement” major group across 130 study jurisdictions**



**Figure 5d. Prevalence of the “motivated and moderately educated, younger” major group across 130 study jurisdictions**



**Figure 5e. Prevalence of the “moderately educated, older” major group across 130 study jurisdictions**



Jurisdictions with the highest concentrations of the “diverse, less-educated, and eyeing retirement” group represent a mix of regions, but many are in the Northeast; and they represent places with a variety of educational attainment distributions. The natural resources and mining (including agriculture) sector is especially prevalent in two of the top five places (San Joaquin and Ventura counties in California). The construction, manufacturing, and trade, transportation, and utilities industries are also common, as are, to a somewhat lesser extent, education and health services. In general, most of these places have posted relatively slow population growth or decline (Cuyahoga County, Ohio) since 2010.

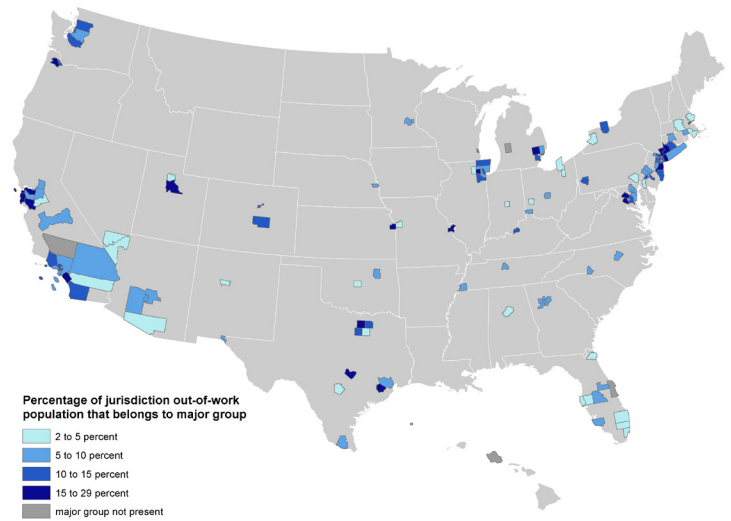
The largest concentrations of the “motivated, moderately educated” group fall in moderately sized counties in the northern Midwest, West (particularly the Mountain West region, including El Paso County, Colo.; Utah County, Utah; and Denver), and the Middle and South Atlantic. Members of this group represent over a quarter of the out-of-work populations of Bristol County, Mass.; El Paso County, Colo.; Ramsey County, Minn., home to St. Paul; and Delaware County, Pa. Jurisdictions with higher-than-average shares of this group represent a mix of places with population growth and decline since 2010.

Higher-than-average concentrations of the “moderately educated, older prime-age” group occur primarily in the South and West, and to a lesser extent in the Midwest (although 25 percent of the out-of-work population of Montgomery County, Ohio, in the Dayton metropolitan area, belongs to this group). With the notable exception of Baltimore, places with the highest concentrations of this group tend to have the highest proportions of their out-of-work populations with some college, an occupational certificate, or an associate degree; by contrast, the younger moderately educated group spans a broader range of places with respect to educational attainment.

Places with the largest concentrations of the “highly educated and engaged younger” group are primarily large counties. They are dominated by information and professional and business services. They tend to have high rates of labor force participation and lower-than-average unemployment. The Bay Area (including the San Francisco and San Jose metropolitan areas), metropolitan Washington, D.C., and metropolitan New York and Bridgeport have high concentrations of this group. These also tend to be more-educated places; Denton County, Texas, and Utah County, Utah, are exceptions, ranking highly on the share of their populations that are moderately educated. Many posted relatively large population growth since 2010, in particular Utah County, Utah (11.3 percent); Travis County, Texas (14.8 percent); Denton County, Texas (17.7 percent); and Fort Bend County, Texas (22.2 percent).

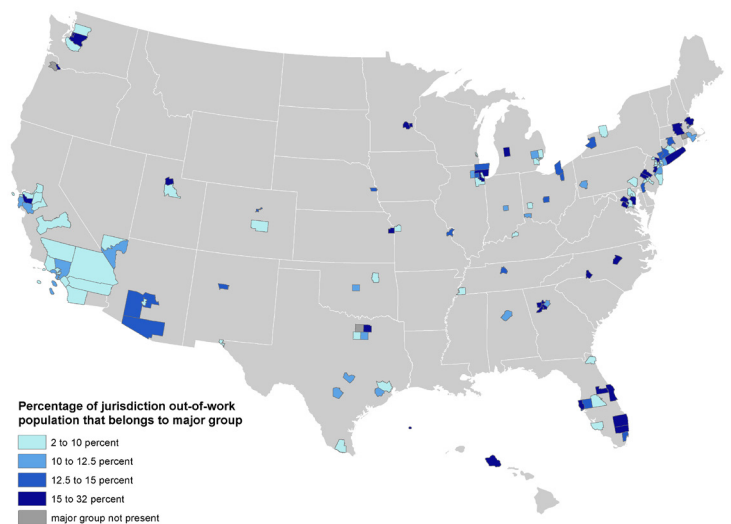
Areas with high concentrations of the “highly educated, high-income older” group have among the highest labor force participation rates and lowest rates of unemployment of all jurisdictions examined in this analysis. They are also among the most-educated areas overall. Their economies are most likely to be built on information, financial, and professional and business services. Many are located on the Eastern Seaboard, with Seattle and King County, Wash., and Alameda County, Calif., as notable exceptions. In five places, over a quarter of the out-of-work population belongs to this group, including Seattle (32 percent); Montgomery County in suburban Philadelphia (28 percent); Hennepin County (which contains Minneapolis); Manhattan; and Wake County, N.C.

**Figure 5f. Prevalence of the “highly educated and engaged, younger” major group across 130 study jurisdictions**



Source: Brookings analysis of 2013-2015 American Community Survey microdata

**Figure 5g. Prevalence of the “highly educated, high-income, older” major group across 130 study jurisdictions**



Source: Brookings analysis of 2013-2015 American Community Survey microdata



## Proven and promising practices to connect out-of-work groups to employment

The research literature on the effectiveness of employment and training programs for low-wage workers and those with low levels of education or barriers to employment is voluminous and spans decades. Although people with bachelor's degrees also benefit from training and job search assistance, they have higher employment rates and earnings than those with lower levels of education and are thus not typically targeted by workforce programs, most of which define themselves as “second chance” programs or for those struggling to advance beyond low-wage jobs.

At the most general level, effective workforce programs offer training that aligns with regional labor market needs and in-demand skills, and provide guidance, counseling, and other appropriate supportive services to participants. While successful workforce initiatives share these baseline characteristics, programs come in a variety of shapes and sizes and use different approaches, driven in part by their setting (community-based organization, community college, public workforce system, etc.), as well as the population they serve.

In fact, the question of what works best in workforce development is more usefully conceptualized as a narrower question: what works best *for whom*? Critical to developing successful programs for disadvantaged populations is understanding their circumstances and designing services accordingly. Unfortunately, there are some gaps in the research base about how to best serve people with barriers, including those experiencing long-term unemployment or homelessness; the previously incarcerated; and those with limited English proficiency, a disability, or an addiction problem.<sup>18</sup> Another limitation is that much of the research evaluates a bundle of services as a whole, making it

difficult to tease out the effects of specific program elements.<sup>19</sup>

Overall, the programs described in this paper are for people with limited skills and work experience, not for dislocated or displaced workers. The latter have a strong work history and substantial skills specific to an industry or occupation, but lose their jobs due to layoffs and plant closings that are in turn caused by economic shifts that reduce demand for those specific skills. While public perception regarding these workers may focus primarily on manufacturing workers, white-collar and service-sector workers are also among their ranks. Dislocated workers typically face major earnings losses when they find new jobs, in the range of 15 to 25 percent annually for the remainder of their working lives.<sup>20</sup> There is little evaluation research on how best to serve these workers, but one paper cautions that retraining for such workers should be “one arrow in the quiver;” other policy options include strategies to increase local demand for labor and to support displaced workers in moving to other regions with stronger job markets.<sup>21</sup>

In sum, one report assessed the state of workforce development research with this succinct statement: “good quality, insufficient

quantity, inadequate dissemination, and [in need of] a more transparent, independent research process."<sup>22</sup>

However, even with these limitations, research provides ample and useful guidance for local officials, practitioners, and other stakeholders on strategies to connect people to employment. Based on our review of the literature—primarily, evaluations able to determine causality with control and experimental groups but also outcome and implementation evaluations—we matched interventions to major groups based on the similarity between the individuals in the groups and the participants in the programs that were evaluated. Please see Appendix Table 3 for a description of the sample populations in the evaluations.

Of course, there are more programs and models than described in this paper. Formal evaluations

are complicated and expensive to conduct, and while they are a critical component of measuring effectiveness, they are not the only tool. Programs do not need third-party evaluators and random assignment studies to lay out clear goals, to use data to assess progress toward their goals, and to strive for excellence. Moreover, practitioners and researchers across the country have developed substantial expertise regarding program design and strategies to serve specific populations using methods other than evaluations with treatment and control groups.<sup>23</sup> The challenge is that this body of knowledge is not systematically organized to be easily accessible. In short, local leaders and stakeholders should not feel limited to the programs listed in the paper; there are no doubt high-performance programs in their region that were not captured in the literature review of evaluated programs.

**Table 3. Program recommendations by cluster analysis major group**

	Young, less-educated, and diverse	Less-educated prime-age	Diverse, less educated, and eyeing retirement	Motivated and moderately educated	Moderately educated older people	Highly educated, engaged young people	Highly educated, high-income older people
	(Less-educated)			(Moderately educated)		(Highly educated)	
Median age	30	45	59	33	55	34	56
Bridge programs	✓	✓	✓*	✓			
Transitional jobs	✓	✓	✓*				
Social enterprises	✓	✓	✓*				
Job search assistance and counseling	✓	✓	✓	✓	✓	✓**	✓**
Sector initiatives	✓	✓	✓*	✓	✓*		
Two-generation	✓	✓		✓			
Apprenticeship	✓	✓		✓			
CUNY ASAP	✓	✓*	✓*	✓	✓*		

✓ = The population participating in the evaluation matches the population in the major group on education and age.

✓\* = The population participating in the evaluation matches the population in the major group on education, but skews younger than the major group.

✓\*\* = Services are universal and available to all, although the population in the major group has higher education levels than the population participating in the evaluation.

The following discussion starts with the interventions for those with the lowest educational levels and work experience, and proceeds to interventions for people with higher skills. Distinctions among the categories are sometimes blurry; for example, bridge programs and two-generation programs often incorporate sector elements.

The matches between groups and interventions are meant as guidelines rather than a statement that a particular intervention is suitable for every member of a given group. For example, although education is a rough proxy for skills, it is not exact. Someone with a high school diploma may be ready for college-level education and training, or may need additional skill-building; by contrast, a person without a high school diploma may find it beneficial to earn a GED to meet enrollment requirements but otherwise may have sufficient skills for post-secondary education and training. Similarly, a person with “some college” could be a few credits shy of an associate degree, have earned a certificate or certification such as A+, certified nursing assistant, or licensed practical nurse, or have enrolled in school for a semester and then dropped out. These all have different implications for what the next step should be.

---

**Effective workforce programs offer preparation and training that align with local labor market needs, coupled with guidance and appropriate support services.**

---

## Bridge programs

*Suitable for:*

- *People with very weak academic skills, primarily those without a high school diploma.*
- *People focused on education rather than or in addition to immediate employment.*
- *The following major groups:*
  - \* *Young, less-educated, and diverse.*
  - \* *Less-educated prime age.*
  - \* *Motivated and moderately educated.*

Bridge programs prepare community college students with very low reading and math skills for college-level academic or occupational training programs. Often such students are funneled into developmental education to improve their skills, but typically, few students proceed from developmental education into the academic or occupational courses in which they were originally interested.<sup>24</sup>

In response, a number of places have developed bridge programs as an alternative model to help students gain the necessary academic, employability, and technical skills to enable them to succeed in further educational and training options. The two bridge programs that have been rigorously evaluated are I-BEST in Washington state and Bridges to College and Careers at LaGuardia Community College in New York City.

I-BEST (Integrated Basic Education and Skills Training) operates in community colleges across Washington state and has expanded to other parts of the country. It combines developmental education with occupational training to accelerate students' transition into occupational training. Courses are jointly taught by academic and occupational instructors, and are entry points to courses of study leading to a post-secondary credential in fields such

as health care and automotive technology. An evaluation found that I-BEST students were 7.5 percentage points more likely to earn a certificate within three years and almost 10 percentage points more likely to earn college credit relative to peers who did not participate in I-BEST.<sup>25</sup>

The GED Bridge program at LaGuardia Community College has several aims: increase the share of students who pass the GED exam, develop general academic habits and skills to prepare students for post-secondary education or further training, and increase enrollment in post-secondary education. As with I-BEST, students' academic work is contextualized rather than generic, using content tailored to an occupational context and real-world implications (in this case health care or business). Lessons and courses are also structured to mirror the assignments and expectations associated with college: students receive a syllabus at the start of the semester, get regular homework, and receive assignments focusing on writing and critical thinking. The program also includes career exploration and college advising. An evaluation found that GED Bridge students were much more likely to complete the course than their peers in a regular GED course (68 percent vs. 47 percent), pass the GED exam (53 percent vs. 22 percent), and enroll in a CUNY community college (24 percent vs. 7 percent).

Several multistate efforts have focused on bridge programs, in whole or in part, situating them within broader career pathway initiatives.<sup>26</sup>

## Career pathways

Career pathways are sets of structured, sequenced training and education opportunities that allow a job seeker or worker to gain the skills and credentials to continue to advance in the labor market in a particular industry or sector. They typically focus on labor market needs at the regional level, and seek to reform adult education, workforce, and community college systems to work together more effectively to meet the needs of low-skill workers and students.

The approach is gaining traction. At the federal level, the departments of Labor, Health and Human Services, and Education created a common definition and framework of career pathways to better align the efforts of workforce, education, and social services toward common goals of building marketable skills.<sup>27</sup>

A number of state career pathway initiatives have been or are being evaluated, but as interventions focused on systems and policy change, they do not lend themselves to random assignment evaluations of specific programs within career pathways. The Alliance for Quality Career Pathways has designed a beta framework to measure the effectiveness and impact of career pathways, developing common definitions, metrics, and outcomes.<sup>28</sup> Two impact evaluations of individual programs are underway: the Pathways for Advancing Careers and Education initiative and the Health Profession Opportunity Grant.

## Transitional jobs

*Suitable for:*

- *People with very limited employment experience and substantial barriers to employment, typically with a high school diploma or less.*
- *People interested in immediate employment.*
- *The following major groups:*
  - \* *Young, less-educated, and diverse.*
  - \* *Less-educated prime age.*

Transitional jobs offer short-term, subsidized employment to people with substantial barriers to employment who would be unlikely to find work on their own, based on the rationale that the best way to learn to work is by working. Target populations include people with limited or no work experience, disabilities, criminal records, and low academic and soft skills. Programs typically offer a variety of supportive services and help participants find unsubsidized employment.

A number of evaluations are underway that should be very informative as to the effectiveness of this strategy. Up to now, the evidence has been mixed. Evaluations of programs from the 1970s and '80s found that they had positive employment effects,<sup>29</sup> and a more recent evaluation of the Center for Employment Opportunities (CEO) found that transitional jobs reduced recidivism among previously incarcerated people, although it did not increase employment. CEO participants work in crews of about six people supervised by a CEO staff member and perform maintenance and repair work for the city and state agencies. The program's effects on recidivism were strongest among those recently released from prison, and this subgroup (the recently released) also showed improved employment rates, despite the lack of employment effects for the sample as a

whole. This intervention may be most effective for those who were very recently incarcerated.<sup>30</sup>

However, other recent transitional jobs programs serving previously incarcerated people and long-term welfare recipients neither improved employment outcomes nor reduced recidivism, prompting renewed efforts to develop transitional jobs models that produce sustained increases in unsubsidized employment.<sup>31</sup> In 2010, the departments of Labor and Health and Human Services launched coordinated research and demonstration projects evaluating a new generation of transitional jobs models.<sup>32</sup> Based on interim results to date, it is premature to say anything about their effects on helping people secure unsubsidized employment, but they do appear to be reducing recidivism and increasing child support payments. Further results will be released in 2018.

## Social enterprises

*Suitable for:*

- *People with very limited employment experience and substantial barriers to employment, typically with a high school diploma or less.*
- *People interested in immediate employment.*
- *The following major groups:*
  - \* *Young, less-educated, and diverse.*
  - \* *Less-educated prime age.*

Social enterprises are similar to transitional jobs programs: both serve people with barriers to employment and place them in supportive work environments to help them adapt to the workplace. Social enterprises, however, operate as mission-driven businesses in fields such as food service, groundskeeping, and maintenance, and directly hire the people they are serving. They generate revenue by selling goods and services in the open marketplace

and develop a symbiotic relationship between the business and social missions. The social mission of serving the unemployed would not be financially viable without the business revenue, and the enterprise relies on participants as its workforce. That latter point also helps ensure that the work and training experiences are authentic, since an enterprise whose employees consistently perform poorly would struggle to stay in business.<sup>33</sup>

Such programs are not new, and they have grown in popularity in recent years, but there has been little rigorous research on their outcomes, impacts, costs, and benefits. New research on social enterprises in California adds

to the body of knowledge. The social enterprises include a variety of business lines, including street cleaning, janitorial services, construction, and food service. The program model included the following components: employment in the social enterprise; work-readiness training; supports such as clothing, assistance with transportation, and food pantries; and post-employment support.

An outcomes study (that did not include a treatment and control group) found that participants had an increase in employment of about 20 percentage points after one year, along with a 91 percent increase in their monthly income and increased housing stability.<sup>34</sup>

## Engaging 'motivated nonworkers'

Another approach merits consideration, particularly for residents of very distressed neighborhoods and very little work experience: community building and civic engagement. It was not included in the list of effective programs because of the difficulty of tying improved employment outcomes to such efforts via an evaluation, but there could be important benefits at the individual and community level to creating structured, stipend-paying activities for individuals based on their roles as parents and community members. Limited work history and low educational levels do not prevent people from playing constructive roles in their community, although they may not know how to create these opportunities: hence the term "motivated nonworkers." For example, individuals can participate in an after-school safety patrol, groundskeeping for public spaces, or maintaining a community/school garden. These activities

are similar to transitional jobs in that they are highly structured and supervised, but with a lower time commitment and without an explicit goal of leading to unsubsidized job placement. Such programs allow participants to build or maintain a positive identity within a community and generate social bonds based on a well-defined and productive role. These are not the same outcomes as steady employment, but given the lack of jobs in some areas and the fact that many people with serious barriers to employment struggle to get beyond sporadic, low-wage jobs even in strong economies, these goals may be worthy in themselves.<sup>35</sup> Researcher Dan Bloom noted the multiple goals of transitional jobs and subsidized employment models, commenting that such programs "could produce spillover benefits by reducing crime, improving communities, [and] connecting alienated young people to mainstream institutions and lifestyles."<sup>36</sup>



## Job search assistance and counseling

*Suitable for:*

- *Anyone interested in finding a job; services are universally available. However, those in the evaluations cited below primarily had a high school diploma or less.*
- *All major groups.*

An evaluation of services for adults and dislocated workers examined the effects of different services available under the federal Workforce Investment Act (WIA). The study found that the availability of “intensive services” (staff assistance with a variety of services, including assessments, career counseling, job search assistance, career planning, and referrals) increased earnings by 17 percent 15 months after the study began, as well as the likelihood of holding a job with fringe benefits. Although the study’s findings are based on WIA services, they apply under the recently enacted Workforce Innovation and Opportunity Act as well, since WIOA continues the same basic set of services for adults and dislocated workers and retain similar eligibility criteria.<sup>37</sup>

This builds on earlier research about the effectiveness of job search assistance and other services in the public system, and the value of customizing services. One analysis found that the use of assessment tools to better identify barriers to employment and provide more targeted services increased the 90-day retention rate after job placement by 20 percentage points.<sup>38</sup> Another found that participants who received more intensive counseling and a higher cap for training costs had higher earnings and were more likely to work in the occupations for which they trained than those with less information and a fixed training award.<sup>39</sup>

## Sector initiatives

*Suitable for:*

- *People interested in occupational skills training who do not require remedial education before enrolling (although bridge programs may serve as the first sequence in a sector program).*
- *People who can commit to courses of study that are fairly time-intensive.*
- *The following major groups:*
  - \* *Young, less-educated, and diverse.*
  - \* *Less-educated prime age.*
  - \* *Motivated and moderately educated.*

Sector strategies are partnerships among employers, educators, and other workforce stakeholders to identify and address the workforce needs of a particular industry within a regional labor market. They have a “dual customer” approach, seeking to meet the needs of both employers and workers. These partnerships aggregate employer interest and demand, thereby reducing the inefficiencies of one-by-one engagements in which training organizations seek to meet the job placement and training needs of individual employers. It also allows the organization operating the sector strategy (often a training organization, consortium of employers, or local workforce investment board) to develop expertise about a given industry’s occupational skill requirements, business practices, markets, and other factors that affect employers’ hiring and training needs.<sup>40</sup>

Sector strategies typically serve a mix of incumbent workers and entry-level workers and job seekers, often low-income and low-skill workers, and do not usually focus on occupations that require a bachelor’s degree. The most commonly targeted industries are health care, manufacturing, and construction, all of which include a substantial share of middle-



skill jobs (i.e., those that require more than a high school diploma but less than a four-year college degree and hold promise for higher earnings).<sup>41</sup>

An increasing body of evidence shows that sector programs increase earnings among their graduates. A 2010 evaluation of three sector programs—Jewish Vocational Service in Boston, Per Scholas in New York City, and the Wisconsin Regional Training Partnership in Milwaukee—found that participants earned 18 percent more than the control group over the two-year study period. Participants were more likely to work, and were in jobs with higher wages and benefits. The programs shared key programmatic elements: 1) They forged strong relationships with employers in targeted sectors in their regions to identify employers' workforce needs; 2) they targeted people who would be a good match for training and job placement; 3) they provided their students with training—geared both to occupational skills and general job readiness—tailored to meet employers' needs; and 4) they coupled the training with supportive and guidance services.<sup>42</sup>

---

A growing body of evidence shows that sector programs increase the earnings of low-income individuals.

---

Two more recent studies provide additional evidence that sector programs increase the earnings of low-income individuals. The WorkAdvance initiative included four programs and found that participants earned 14 percent more than the control group two years after program entry.<sup>43</sup> An evaluation of Project Quest in San Antonio, Texas, found that participants earned 14 percent more than the control group at Year 3, with earnings gains increasing over time: participants earned 22 percent more than the control group at Year 6. The continued earnings growth is notable, since six years is an unusually long study period, and one common concern about workforce programs is that earnings gains sometimes dissipate over time.<sup>44</sup>

Sector initiatives are emphasized in the Workforce Innovation and Opportunity Act and are also supported by several networks, including the National Fund for Workforce Solutions and the National Network of Sector Partners. A number of states have embedded sector initiatives into their workforce strategies, with Massachusetts and Washington among the earliest adopters.<sup>45</sup>

Sector programs must balance an inherent tension arising from their dual-customer approach of serving both employers and low-skill job seekers. To provide value to employers and maintain a positive relationship, sector programs must supply competitive candidates who meet the job qualifications. This requires careful targeting of participants, which in practice means screening out many interested job seekers unlikely to succeed in training or on the job, because of insufficient skills; problems related to child care, transportation, or housing; or other barriers. It also means screening employers and occupations regarding wages, job quality, and potential for advancement.

## The Workforce Innovation and Opportunity Act

While the recommendations are geared to local actors and the policy and program changes within their purview, a few words about the federal context are in order, since federal policies and funding shape local activities.

The federal Workforce Innovation and Opportunity Act (WIOA) is the primary architecture for the workforce development system and functions as a partnership among federal, state, and local governments. WIOA lays out a blueprint for how states and localities should approach job placement services and job training, provides funding for employment services, and seeks the right balance of flexibility and accountability.

The public system is anchored by about 2,500 American Job Centers operated locally. These provide information on job openings and other employment-related topics; career counseling, assessments, and case management; and, contingent upon funding availability, financial support for training for particular populations: adults, dislocated workers (adults who have lost their jobs), and youth. Thus, while WIOA and its predecessor, the Workforce Investment Act, are sometimes called job training programs, they support a range of employment services and the number of individuals receiving training is fairly low—about 200,000 adults and dislocated workers, or 1 to 2 percent of workers seeking assistance from the public workforce system. Training is mostly

modest and short term; one estimate of the average value of a training voucher was about \$2,500.<sup>46</sup>

WIOA channeled almost \$3 billion to the states in 2016, which then distributed it to local workforce investment boards (WIBs) and agencies; the Trump administration's proposed 2018 budget would cut that figure to \$1.6 billion.<sup>47</sup> WIBs design workforce strategies and services, allocate WIOA funds, and monitor performance. In 2015, 1.2 million people were served by WIOA-funded programs.<sup>48</sup> Federal funding for workforce programs has trended downward over time, including both WIOA and the related Wagner-Peyser program, which supports labor exchanges to match job seekers to job openings. As a result, fewer people receive services, and those who do are more likely to participate in automated self-service activities and receive less intensive staff assistance.<sup>49</sup>

WIOA is not the only federal program to support employment services for out-of-work populations, and indeed, part of the mission of WIBs is to partner with other federal, state, and local programs. They are intended to be the hubs that coordinate the multiple entities involved in employment-related services. Federal partners include Wagner-Peyser, Temporary Assistance for Needy Families, SNAP (food stamps) Employment and Training, adult literacy, and vocational rehabilitation.

## Two-generation programs

*Suitable for:*

- *People interested in occupational skills training who do not require remedial education before enrolling (although bridge programs may serve as the first step in the sequence).*
- *People with young children.*
- *People who can commit to courses of study that are fairly time-intensive.*
- *The following major groups:*
  - \* *Young, less-educated, and diverse.*
  - \* *Less-educated prime age.*
  - \* *Motivated and moderately educated.*

Two-generation programs, as the name suggests, focus on parents and children. There is a range of such programs, including some specifically addressing employment and post-secondary education for parents. These programs link sector-based workforce development for low-income parents with early childhood education for their young children along with a variety of wraparound services, such as career coaching and building a peer community.<sup>50</sup>

An early example of a workforce-focused two-generation program is CareerAdvance in Tulsa, Okla., which pairs early childhood education with career pathway training in the health care field for parents. A recent evaluation found that parents were more likely to earn post-secondary credentials (61 percent earned a career certificate compared with 3 percent in the matched comparison group) and gain employment in the health care sector (49 percent of participants vs. 31 percent). Participants also demonstrated higher levels of psychological well-being, including self-efficacy and optimism.<sup>51</sup>

## Apprenticeships

*Suitable for:*

- *People interested in occupational skills training, typically with a high school diploma.*
- *People who can commit to courses of study that are fairly time-intensive.*
- *The following major groups:*
  - \* *Young, less-educated, and diverse.*
  - \* *Less-educated prime age.*
  - \* *Motivated and moderately educated.*

Apprenticeship programs take an “earn and learn” approach to education and training: apprentices earn wages while performing productive work and undergoing supervised, work-based training with related academic instruction. Apprenticeships can be sponsored by employers, union-employer agreements, government agencies, and the military. There are registered apprenticeship programs overseen by the U.S. Department of Labor and state agencies as well as unregistered apprenticeships. Most apprenticeships are clustered in construction and manufacturing, although they exist in other fields such as utilities, auto and truck repair, police and fire, trucking, child care, and long-term care.<sup>52</sup>

Research on registered apprenticeships in 10 states found that they have strong economic payoffs for workers, with earnings gains of about \$6,000 per year in the ninth year of enrollment.<sup>53</sup> Another study found that employers with apprenticeship programs benefited as well in terms of increased productivity.<sup>54</sup>

In a review of international vocational education approaches, the Organization for Economic Cooperation and Development (OECD) noted four strong advantages of work-based learning

approaches such as apprenticeships compared with classroom-based learning: 1) Students learn on up-to-date equipment and based on the most recent working methods and technologies; 2) it facilitates a two-way flow of information between potential employers and employees, making later recruitment more effective and efficient; 3) the employer's participation in itself is a signal that the training has labor market value; and 4) trainees can make a productive contribution to the workplace.<sup>55</sup>

## ASAP (Accelerated Study in Associate Programs)

*Suitable for:*

- *People interested in earning an associate degree who have been assigned to one or two developmental education courses.*
- *People who can commit to attending school full time.*
- *The following major groups:*
  - \* *Young, less-educated, and diverse.*
  - \* *Motivated and moderately educated.*

The City University of New York (CUNY) developed the ASAP program to improve graduation rates among community college students who required one or two developmental education courses to improve their math, reading, or writing skills. It consists of four major components:

- Requirement that students attend full time.
- Comprehensive student services: academic advising, career counseling, and tutoring.
- Courses: success seminars on topics such as goal setting and study skills, enrolling in “blocked courses” (two or more courses linked together with seats reserved for ASAP students, which supports peer communities).

- Financial support: tuition waiver that covers any gaps between financial aid and tuition/fees, free textbooks, and public transportation subsidies.

To be eligible for the study, students had to be an entering freshman or a continuing student who had not earned more than 12 credits, willing to enroll full time, low income (less than 200 percent of the poverty line), and assigned to one or two developmental courses. Although ASAP serves developmental education students, it differs from bridge programs in several ways. It does not change the curriculum of developmental education courses or what happens inside the classrooms. It is not preparing students *for* post-secondary education; rather, it is providing them with additional supports and services while they are already enrolled in credit-bearing college courses toward a degree.

After three years, the program almost doubled the rate of students who earned an associate degree (from 22 percent to 40 percent) and increased the likelihood that students would transfer to a four-year school. Evaluators noted that the increase in graduation rates was the largest they knew of for a community college intervention.<sup>56</sup>

Subsequently, the model expanded to three community colleges in Ohio, and the related evaluation will shed light on how replicable the ASAP model is to different contexts and student bodies.<sup>57</sup> Although it does not incorporate sector principles or explicitly target employment as an outcome, it is included here because of its success in helping people with low skills progress to a meaningful educational credential, which greatly increases their employment prospects.

## Conclusion

The endeavor to help low-skill residents improve their employment and earnings is a marathon, not a sprint. There is no silver bullet, but local and regional leaders can use multiple strategies to build more structured pathways into employment. This paper proposes a more holistic approach to understand the out-of-work population and develop strategies to meet their needs than is typical in governmental or other programs, which often are driven by funding streams with particular eligibility requirements or the policy focus du jour.

Local leaders and stakeholders can review the data and compare it to their baseline understanding of the out-of-work population in their jurisdiction. It may be useful to examine not only the groups, but also the data on the out-of-work as a whole (not segmented into groups) to understand general patterns. Both are available on the [interactive webpage](#), as are maps showing areas in a given jurisdiction where people in different groups concentrate.

There may not be major surprises in the data, but there may be more or less of a given group than is commonly thought, such as the share with limited English proficiency, or disabilities, or very little work experience. Leaders can also map the programs and services in their jurisdiction that correspond to the different groups, using the interventions listed here as a guide, and identify any holes or gaps. The data themselves cannot dictate how a jurisdiction will prioritize the populations it wants to serve; that will depend on the interests, capacity, and resources of the public, private, and social sectors.

Any intervention should involve careful attention to “getting the civics right,” as Amy Liu has noted: engaging stakeholders and partners to

carry out the work, or outlining the “how” that enables the “what.”<sup>58</sup> There is no one recipe, since each locale and region has its own history, circumstances, leadership, and institutional capacity. Mayors and county executives will have direct control over some resources and programs, and not others (such as community colleges), but in any case, effective workforce programs typically involve collaboration across programs and organizations.

Lastly, a few words are in order on the federal context and the resources and constraints associated with federal policy.

The U.S. makes smaller investments in active labor market policies to help people find good jobs or increase their skills and earnings than other OECD countries, spending 0.1 percent of GDP on active labor market policies, compared with the OECD average of 0.5 percent. Moreover, these investments have declined over time.<sup>59</sup> WIOA has an ambitious goal, envisioning a seamless workforce system linking diverse talent to businesses and supporting vibrant regional economies.<sup>60</sup> But WIOA does not provide the resources or authority to accomplish this, even if WIBs leverage other programs to the maximum—especially given the magnitude of the economic changes wrought by globalization and automation.

---

**There is no silver bullet, but local leaders can use multiple strategies to build pathways to employment.**

---

Digitization is reshaping occupations and labor markets, with profound implications for the workforce and society. Computers are substituting for workers in carrying out routine tasks, and complementing workers performing non-routine tasks requiring more creative problem-solving. These labor market changes require education and training strategies to adapt to provide workers with the necessary digital literacy and problem-solving skills.

Globalization has affected U.S. labor markets for decades, as competition with low-wage countries has depressed wages and employment in particular occupations, industries, and regions.<sup>61</sup> The effects of these job losses linger; one influential paper described recovery from trade shocks as “stunningly slow, with local labor force participation rates remaining depressed and local unemployment rates remaining elevated for a full decade or more after a shock commences.”<sup>62</sup>

Others have written about the limitations of the current federal workforce system and safety net, and proposed a variety of reform options. These include wage insurance (earnings supplements for people who lose their jobs and can find only lower-wage employment); emergency aid for families in crisis; a vastly expanded commitment to improving basic literacy and numeracy skills; the creation of a cadre of career navigation advisers to provide hands-on assistance; standardizing labor market credentials such as certificates, certifications, and badges to provide clearer information on what the credential-holder knows and can do; and metrics oriented toward broad, cross-program goals (such as increasing the share of residents with a post-secondary credential). These would require increased funding and a new framework for workforce policy, both of which are ambitious undertakings.<sup>63</sup> There does not appear to be

political support in Washington for such an approach; the prevailing sentiment instead points toward a smaller role for the federal government in the future.

Local leaders are often best positioned to apply public and private resources to address workforce issues, but they don't have the power or funds to address the scale of the problem on their own. They need a strategic, flexible, and accountable partner in the federal government. In any case, however, local leaders will continue to help residents improve their skills and employment prospects, and it is our hope that this paper provides them with data and insight to support their efforts, even as they navigate choppy economic and fiscal waters.



## Technical appendix

The goal of this analysis is to sort local out-of-work populations into groups useful to local stakeholders in workforce development. It is based primarily on three-year American Community Survey (ACS) microdata. We first define the “out-of-work” population and use cluster analysis to organize these individuals into groups based on their similarity across a number of demographic, economic, and social dimensions.

### I. 3-year American Community Survey microdata

Our analysis is based on 2013-2015 three-year ACS Public-use Microdata Samples data.<sup>64</sup> Because the U.S. Census Bureau ceased production of three-year ACS products in fall 2015, we construct our own three-year data set by pooling three single years of data and adjusting all person and household, primary and replicate weights as follows:

- \* First, we allocate county population totals from the Population Estimates Program for each of the three years to vintage-2010 Public-use Microdata Areas (PUMAs), using allocation factors derived from the Census Bureau’s 2010 PUMA Equivalency Files.<sup>65</sup>
- \* Next, for each year  $t$ , we create three-year weights by multiplying single-year weights by:

$$PUMA\ population_t / PUMA\ population_{2014} / 3$$

- \* Finally, all nominal dollars are converted to 2015 dollars.

### II. Sample geographies

We focus on cities and counties with populations over 500,000 because, in addition to sample size considerations, this threshold allows for relatively neat alignment between PUMAs, the unit of geography associated with PUMS data,

and jurisdiction boundaries. Beginning from a list of cities and counties with populations over 500,000, a PUMA is initially assigned to a jurisdiction if at least half of its decennial census population falls within that jurisdiction, again based on allocation factors derived from the 2010 PUMA Equivalency Files. Next, jurisdiction PUMA population totals from initial assignments are compared with the jurisdiction’s total population. If these differ by more than 10 percent, the assignment is considered too messy to use and we drop that jurisdiction from our analysis. In all, we end up with 130 areas. For a complete list of jurisdictions and sample sizes, see Appendix Table 4.

### III. Cluster analysis

Guidance on how to implement cluster analyses is not prescriptive,<sup>66</sup> and one handbook notes that cluster analysis should be “judged largely on its usefulness, rather than in terms of whether it is ‘true’ or ‘false.’”<sup>67</sup> Our goals are “constructive,” which is to say “intend[ed] to split up the data into clusters for pragmatic reasons, regardless of whether there is some essential real difference between the resulting groups.”<sup>68</sup> How we intend to use the clusters—that is, to segment the out-of-work population into groups that might benefit from similar kinds of workforce assistance interventions (like a market segmentation)—drove our specific methodological choices.

This analysis features two consecutive cluster analyses: In the first, individuals in each of 130



jurisdictions are clustered, and in the second, clusters from the first step are clustered. Here we discuss, for each of the two cluster analyses, how we defined our sample, or clustering elements; clustering variables; similarity measure; clustering method; stopping rules (to identify the “right” number of clusters); and validation and interpretation of results. For a summary of components of the cluster analyses, see Appendix Table 5.

### A. Jurisdiction-level clusters

Although methodological guidance in clustering literature tends not to be prescriptive, one handbook had a useful suggestion: “Useful market segments need to be addressed by non-statisticians and should therefore normally be represented by few variables, on which dissimilarities between members should be low.”<sup>69</sup>

#### i. Clustering elements

As discussed in the paper, the “out-of-work” individuals we wish to sort into groups may be technically either unemployed or not in the labor force. The latter category is broad, and includes many people whom we do not wish to capture. To approximate the population that is jobless, interested in work, and could potentially benefit from workforce assistance programs, we combine the unemployed and not-in-the-labor-force populations and then subtract certain subsets:

- \* “Traditional” students, defined as all those not in the labor force, as well as college students living in dormitories and high school students living at home. We also subtract all graduate and professional students, who may be “on the right track” to employment. Ninety-five percent of students excluded are not in the labor force, and students account for 14 percent of

the initial population that is dropped from our sample.

- \* Individuals who may have retired early or who are considered permanently and totally disabled, defined as individuals receiving retirement or disability income. Work effort among members of this group is low: 78 percent of all persons receiving such income are not working, and among those not working just 7.8 percent have worked in the past year. This group constitutes two-thirds of those dropped from the initial universe population.
- \* Stay-at-home parents, defined as married persons not in the labor force, with children, whose spouse is present and employed, and with family incomes at least twice the federal poverty level. This population constitutes 21 percent of individuals we subtract from our universe population. We are not able to identify people caring for family members other than children.

Exclusions from the sample population are summarized in Appendix Table 6.

#### ii. Clustering variables

Our clustering variables represent a combination of barriers to employment and characteristics associated with positive or negative employment outcomes. Several are correlated with one another but are included because they are important in defining our cluster concept:<sup>70</sup> highest level of schooling completed, years of education, age, whether an individual is under age 35 or over age 55, whether they are a racial/ethnic minority, whether they are an English language-learner, the status and severity of any disabilities, whether

they are caring for children in their home, whether they worked in the past year, and the ratio of their family's income to the relevant poverty threshold.

For the most part, variables are drawn directly from the ACS with minimal adjustment, although two—disability status and severity, and presence of children—required more extensive preparation:

- \* The ACS asks about six forms of disability: vision, hearing, ambulatory, cognitive, self-care, and independent living.<sup>71</sup> We construct an index to try to capture the cumulative difficulty associated with experiencing one or more of these forms of disability, based on observed rates of employment in the 2015 one-year ACS. Individuals reporting hearing difficulty have the highest rates of employment; hearing difficulty is thus assigned a value of 1. Each of the other categories is assigned a value according to the likelihood of being jobless relative to hearing difficulty. Vision difficulty is thus assigned a value of 1.2; cognitive and ambulatory difficulty, 1.5; and self-care and independent living difficulty, 1.7. The sum of these values forms our index.
- \* Identification of parents in the ACS is not always straightforward. For individuals living in family households, parental status is determined unambiguously using variables “hupaoc,” “relp,” and “sfr.” For individuals living in non-family households, we replicate the Integrated Public Use Microdata Series (IPUMS-USA) method for assigning parental links: Unrelated children are assigned to the closest preceding adult with a “plausible” age difference, defined as 12 to 54 years for women and 15 to 74 years for men.<sup>72</sup>

Importantly, our clustering variables include both categorical and continuous measures, which limits our choice of both similarity measure and clustering method, about which we write more below. Clustering literature suggests that standardization by a variable's range produces favorable outcomes for continuous variables.<sup>73</sup> Such standardization is done automatically by Stata in the next step, in calculation of a dissimilarity matrix. Consequently, variables were not standardized separately.

### iii. Similarity measure

We use the Gower dissimilarity coefficient because our clustering variables are a mix of categorical and continuous variables; it is perhaps the best-known option for use with mixed data.<sup>74</sup> We also believe a dissimilarity measure is appropriate given our aims.<sup>75</sup> As implemented in Stata 14,<sup>76</sup> this is defined for observations  $i$  and  $j$  as:

$$\frac{\sum_v \delta_{ijv} d_{ijv}}{\sum_v \delta_{ijv}}$$

where  $\delta_{ijv}$  takes on a value of 1 when observations  $i$  and  $j$  are non-missing for variable  $v$ , and zero otherwise. For binary variables  $v$ ,  $d_{ijv}$  is the same as the matching measure. For continuous variables  $v$ ,  $d_{ijv}$  is equivalent to Manhattan distance divided by the range of the variable.

### iv. Clustering method

We use complete linkage agglomerative hierarchical clustering, also known as “farthest-neighbor” clustering in that it minimizes within-cluster dissimilarity. This method is suitable for dissimilarity data,<sup>77</sup> and for our goal of producing relatively homogenous groups containing individuals

with similar characteristics and barriers to employment. We also tested single linkage and weighted average linkage methods, which are also appropriate for dissimilarity data; results produced by single linkage clustering suffered from obvious “chaining.” Results produced by weighted average linkage methods, while comparable to results produced by complete linkage, were more likely to produce very small clusters, for which we would be unable to reliably estimate descriptive statistics.

#### v. Stopping rule(s)

To automate cluster analyses of 130 jurisdictions, we calculate the Calinski-Harabasz pseudo-F for solutions with between six and 15 clusters, and initially select the number of clusters associated with the highest pseudo-F. Although Calinski-Harabasz is based on analysis of variance (ANOVA), which implies Euclidean space, several researchers argue that it is defensible for use with any distance measure.<sup>78</sup> This statistic has performed well in literature reviewing other stopping rules.<sup>79</sup>

#### vi. Validation

Usefulness and interpretability were our ultimate arbiters of cluster validation. For each combination of clustering variables and methods tested, we produced descriptive statistics to visually inspect for the presence of small samples, and whether results were intuitive—e.g., that educational attainment distributions made sense. For the set upon which we ultimately settled, in a handful of cases we resorted to using the second-best clustering solution with respect to the Calinski-Harabasz statistic, and in two cases we decided to manually split a cluster into two, in both cases based on educational attainment.

### B. Major groups (clusters of clusters)

The 828 jurisdiction-level clusters identified in the first analysis form our clustering elements. In this case, our goal is to identify similar groups of groups across all jurisdictions to enable us to discuss trends across places and to more easily suggest appropriate workforce assistance programs and practices.

Similarly, clustering variables in this second-stage cluster analysis are descriptive statistics from the jurisdiction-level clusters; we also include several “ecological” variables to help distinguish groupings in places with strong vs. weak economies: educational attainment, age, racial/ethnic minority status, English proficiency, prevalence and severity of disability, work history, income, whether they are actively looking for work, whether they are caring for a child under 18 in their home, and area unemployment, labor force participation, and poverty rates. Note that all clustering variables in this case are continuous; they are standardized by their range.

Because clustering variables in this case are all continuous, we use squared-Euclidean distance as our measure of similarity, the default in Stata 14 for our chosen clustering method.<sup>80</sup> We use Ward’s method of hierarchical clustering, which requires raw distance data and is often identified in the literature as an effective method of clustering.<sup>81</sup> As with the first cluster analysis, we select the solution with the highest Calinski-Harabasz pseudo-F for between six and 15 clusters. In addition to examining the descriptive statistics of the resulting seven major groups, we manually examine their assignments across all clusters in all places.

1 Council of Economic Advisers, Executive Office of the President, *The Labor Force Participation Rate Since 2007: Causes and Policy Implications* (2014); Council of Economic Advisers, Executive Office of the President, *The Long-Term Decline in Prime-Age Male Labor Force Participation* (2016); Eleanor Krause and Isabel V. Sawhill, *What We Know and Don't Know About the Declining Labor Force Participation Rate* (Washington, D.C.: Brookings Institution, 2017).

2 It is possible that this method over-counts the target population in some ways and undercounts it in others, but we are limited by the availability of variables available in the ACS. By starting with the entire not-employed population and subtracting specific subgroups, we are casting a wide net and may be including individuals not in the labor force who in fact are happily not working and do not need to work to support themselves and their families. That the sample is two-thirds female suggests that we may have included people who are staying at home with their children or other relatives by choice. However, the question of how much is enough money to support oneself is subjective, as is the decision whether formal employment is desirable and feasible for a given person. Moreover, especially in tight labor markets, officials and businesses may find it useful to identify individuals who could be enticed into the workforce, even if they are not looking for work. Conversely, by subtracting all individuals receiving retirement and/or disability income, and the population of traditional students, we may be losing some people who are interested in work. In the end, we created the sample based on readily identifiable characteristics, partly on the assumption that the cluster analysis would segment the sample into groups with sufficiently different characteristics that it would be more clear what, if any, public policies should address their needs.

3 New York City, because of its large population, is counted as four separate jurisdictions for purposes of analysis: Manhattan, the Bronx, Brooklyn, and the boroughs of Queens and Staten Island combined.

4 Enrico Moretti, *The New Geography of Jobs* (New York: Houghton Mifflin Harcourt, 2012); Richard Florida, *The New Urban Crisis* (New York: Basic Books, 2017).

5 Brian S. Everitt, Sabine Landau, Morven Leese, and Daniel Stahl, *Cluster Analysis*. 5th ed. (London: John Wiley & Sons, 2011).

6 Christian Hennig, Marina Meila, Fionn Murtagh, and Roberto Rocci, eds., *The Handbook of Cluster Analysis* (Boca Raton, Fla.: Taylor & Francis, 2016), 706.

7 Analyses were conducted primarily in Stata 14.

8 Gower's dissimilarity coefficient is used to define proximity between out-of-work individuals because variables are a mixture of categorical and continuous measures. The clustering method used is complete linkage hierarchical clustering. The resulting number of groups for a given place is guided initially by inspection of the Calinski-Harabasz pseudo-F statistic associated with clustering solutions with between six and 15 clusters. In the handful of cases where a cluster's descriptive statistics seemed "off," most frequently because it contained a too-broad educational attainment distribution, we looked to the second-best solution.

9 We did not include gender as a clustering variable even though gender is clearly relevant to employment outcomes based on the differing employment rates of males and females. Although some workforce programs primarily have either male or female participants, and some evaluations show differential effects by gender, it does not follow that programs are suitable only for men or only for women, but rather that gender should be a factor in choosing among options.

10 Note that these first-step cluster descriptive statistics are all continuous measures; we standardize them by their range. Jurisdiction-level groups are clustered using Ward's method, with proximity defined as Euclidean-squared distance. We again choose the resulting number of clusters based on the Calinski-Harabasz pseudo-F statistic associated with between six and 15 clusters.

11 The full list of groups in WIOA are displaced homemakers; low-income individuals; American Indians, Alaska Natives, and Native Hawaiians; individuals with disabilities; older individuals; ex-offenders; homeless individuals; current and former foster youth; English language learners,

individuals with low levels of literacy, or those facing substantial cultural barriers; migrant and seasonal farmworkers; individuals within two years of exhausting lifetime eligibility for Temporary Assistance for Needy Families; single parents; long-term unemployed individuals; and any groups individual governors determine to have barriers to employment.

12 In particular, incarceration can negatively affect both employment and earnings. Source: Bruce Western, Jeffrey R. Kling, and David F. Weiman, "The Labor Market Consequences of Incarceration," *Crime & Delinquency* 47, no. 3 (2001): 410-427. In addition, demographer Nicholas Eberstadt writes, "[A] single variable—having a criminal record—is a key missing piece in explaining why work rates and labor force participation rates have collapsed much more dramatically in America than other affluent Western societies over the past two generations. This single variable also helps explain why the collapse has been so much greater for American men than women and why it has been so much more dramatic for African American men and men with low educational attainment than for other prime-age men in the United States." Source: Nicholas Eberstadt, *Men Without Work: America's Invisible Crisis* (West Conshohocken: Templeton Press, 2016).

13 See, for example: Doris J. James and Lauren E. Glaze, *Mental Health Problems of Prison and Jail Inmates*, (Bureau of Justice Statistics Special Report, 2006); and Seena Fazel, Parveen Bains, and Helen Doll, "Substance abuse and dependence in prisoners: a systematic review," *Addiction* 101, no. 2 (2006): 181-191; and Steven Raphael, *The New Scarlet Letter? Negotiating the U.S. Labor Market with a Criminal Record* (Kalamazoo: W.E. Upjohn Institute for Employment Research, 2014).

14 See, for example: Sarah Shannon, Christopher Uggen, Jason Schnittker, Melissa Thompson, Sara Wakefield, and Michael Massoglia, "The Growth, Scope, and Spatial Distribution of People with Felony Records in the United States, 1948 to 2010," unpublished paper, July 2016; Bruce Western, *Punishment and Inequality in America* (New York: Russell Sage Foundation, 2006); and Steven Raphael, *The New Scarlet Letter? Negotiating the U.S. Labor Market with a Criminal Record*.

15 Nationally, men of color are most likely to have ever been incarcerated. Source: Thomas P. Bonczar and Allen J. Beck, *Lifetime Likelihood of Going to State or Federal Prison* (Bureau of Justice Statistics Special Report, 1997). We did not apply probabilities of incarceration to our sample based on national figures because they do not allow for local variation. However, one can assume that criminal records are likely more prevalent in groups with relatively higher proportions of less-educated individuals, men, and minorities; local officials should bear this in mind when assessing groups for appropriate interventions.

16 Annalisa Matri, Emily Sama-Miller, and Andrew Clarkwest, *Employment Strategies for Low-Income Adults Evidence Review: Standards and Methods* (Princeton, N.J.: Mathematica Policy Research, 2015).

17 It is important to note that our aims in clustering were "constructive" rather than "realist." To illustrate the distinction between these aims, one cluster analysis handbook author writes, "For example, male/female is certainly a meaningful categorization of human beings, but there may not even be a significant difference between men and women regarding the results of a certain attitude survey, let alone separated clusters corresponding to sex." Although the distinction between these conceptual aims is not always clear, we intended primarily to produce practically useful groups, as in a market segmentation, which "may be useful regardless of whether there are really meaningfully separated groups in the data." Source: Christian Hennig, "Clustering Strategy and Method Selection," in *Handbook of Cluster Analysis*, eds. Christian Hennig, Marina Meila, Fionn Murtagh, and Roberto Rocci (New York, NY: CRC Press, 2016).

18 Annalisa Matri and Jacob Hartog, *Gaps in the Evidence on Employment and Training for Low-Income Adults* (Washington, D.C.: Mathematica Policy Research, 2016). However, research currently underway may prove fruitful; for example: Rutgers University is evaluating initiatives for the long-term unemployed and people with disabilities. See the following: John J. Heldrich Center for Workforce Development, Rutgers University, "Evaluation of the WorkPlace's Platform to Employment" (n.d.) available at <http://www.heldrich.rutgers.edu/projects/evaluation-workplaces-platform-employment>, accessed June 13, 2017; John J. Heldrich Center for Workforce Development, Rutgers University,



“Evaluation of Kessler Foundation Community Employment Grant Program Grantees” (2015), available at <http://heldrich.rutgers.edu/projects/evaluation-kessler-foundation-community-employment-grant-program-grantees>, accessed June 13, 2017.

19 Annalisa Mastri and Jacob Hartog, *Gaps in the Evidence on Employment and Training for Low-Income Adults*.

20 Stephen Wandner, *Solving the Reemployment Puzzle: From Research to Policy* (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 2010); Louis S. Jacobson, Robert J. LaLonde, and Daniel G. Sullivan, *Policies to Reduce High-Tenured Displaced Workers’ Earnings Losses Through Retraining* (Washington, D.C.: Brookings Institution, 2011).

21 Louis S. Jacobson, Robert J. LaLonde, and Daniel G. Sullivan, *Policies to Reduce High-Tenured Displaced Workers’ Earnings Losses Through Retraining*; Jens Ludwig and Steven Raphael, *The Mobility Bank: Increasing Residential Mobility to Boost Economic Mobility* (Washington, D.C.: Brookings Institution, 2010); Timothy J. Bartik, *Bringing Jobs to People: How Federal Policy Can Target Job Creation for Economically Distressed Areas* (Washington, D.C.: Brookings Institution, 2010).

22 Carl E. Van Horn, Christopher T. King, Tara Smith, *Identifying Gaps and Setting Priorities for Employment and Training Research* (New Brunswick, N.J.: John J. Heldrich Center for Workforce Development, Rutgers University, 2011).

23 See, for example, the following publications: David E. Balducchi, Cristopher J. O’Leary, and Stephen A. Wandner, *Selected Public Workforce Development Programs in the United States: Lessons Learned for Older Workers* (Washington, D.C.: AARP Public Policy Institute, 2015); Nancy Latham and Mary Sue Vickers, *The Plus 50 Initiative*, in *Transforming U.S. Workforce Development Policies for the 21st Century*, eds. Carl Van Horn, Tammy Edwards, and Todd Greene (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 2015); Le’Ann Duran, Martha Plotkin, Phoebe Potter, and Henry Rosen, *Integrated Reentry and Employment Strategies: Reducing Recidivism and Promoting Job Readiness* (New York: The Council of State Governments Justice Center, 2013); Amanda Bergson-Shillock, *Upskilling the New American Workforce: Demand-driven Programs that Foster Immigrant Worker Success & Policies That Can Take Them to Scale* (Washington, D.C.: National Skills Coalition, 2016); and Robert Nicholas, Ronnie Kauder, Kathy Krepcio, and Daniel Baker, *Ready and Able: Addressing Labor Market Needs and Building Productive Careers for People with Disabilities Through Collaborative Approaches*, (NTAR Leadership Center, 2011); Deloitte, *Engage Your Community: A Local Guide to Addressing the Long-Term Unemployment Challenge* (2014).

24 Nationally, only about 15 percent of students with developmental education needs attending a two-year college earn a degree or certificate within three years. Source: Susan Scrivener et al., *Doubling Graduation Rates: Three-Year Effects of CUNY’s Accelerated Study in Associate Programs (ASAP) for Developmental Education Students* (New York: MDRC, 2015). Research on adult basic skills students in Washington state community and technical colleges found that only 13 percent of students enrolled in English language courses went on to earn any college credit, as did less than one-third of students in adult basic education or GED courses. Students who reached a “tipping point” of at least one year’s worth of college-credit courses and a credential earned substantially more than students who earned fewer than 10 credits. Source: David Prince and Davis Jenkins, *Building Pathways to Success for Low-Skill Adult Students: Lessons for Community College Policy and Practice from a Longitudinal Student Tracking Study* (Olympia, Wash.: Washington State Board for Community and Technical Colleges, 2005); Davis Jenkins, “A Short Guide to ‘Tipping Point’ Analyses of Community College Student Labor Market Outcomes” (New York: Community College Research Center, 2008).

25 Matthew Zeidenberg, Sung-Woo Cho, and Davis Jenkins, “Washington State’s Integrated Basic Education and Skills Training Program (I-BEST): New Evidence of Effectiveness,” working paper (New York: Columbia University, 2010).

26 The Breaking Through (2005-2009) initiative worked with community colleges in Kentucky, Michigan, North Carolina, Texas, and a multistate consortium of Native American tribal colleges to help low-skill adults connect to and succeed in post-secondary education and training. Source: Jobs for the Future and National Council for Workforce Education, *The Breaking Through Practice Guide* (2010).

Shifting Gears (2007-2011) supported six Midwestern states (Indiana, Illinois, Michigan, Minnesota, Ohio, and Wisconsin) to improve transitions to post-secondary education and skills development for low-skilled adults. Source: Brandon Roberts and Derek Price, *Strengthening State Systems for Adult Learners: An Evaluation of the First Five Years of Shifting Gears* (Chicago: Joyce Foundation, 2012). Accelerating Opportunity (2011-2014) builds on Breaking Through and the I-BEST program, supporting states including Illinois, Kansas, Kentucky, North Carolina, and Louisiana in building out courses and services for low-skill adults as the first steps in longer career pathways. Source: Theresa Anderson et al., *The Second Year of Accelerating Opportunity: Implementation Findings from the States and Colleges* (Washington, D.C.: Urban Institute and Aspen Institute, 2015).

27 Joint letter from the U.S. Departments of Education, Health and Human Services, and Labor (2012); U.S. Department of Labor, "Career Pathways Toolkit: A Guide for System Development (2015).

28 CLASP, *Shared Vision, Strong Systems: The Alliance for Quality Career Pathways Framework Version 1.0* (2014).

29 The National Supported Work Demonstration served long-term welfare recipients, people recovering from addiction, previously incarcerated people, and young people who had dropped out of high school. The program provided transitional jobs of 12 to 18 months to participants who worked in small crews with close supervision, working on such jobs as rehabilitating old houses, managing a public park, and operating a day care center. It increased employment and earnings among welfare recipients, particularly those with the least work experience, and among those recovering from addiction. It also reduced criminal activity among those in recovery. Source: MDRC, *Summary and Findings of the National Supported Work Demonstration* (New York, 1980). The AFDC Homemaker-Home Health Aide Demonstration served welfare recipients and incorporated a sector focus, though it was not called that at the time. Participants received classroom training and practicum experience as home health aides for people in need of long-term care, after which they were provided a subsidized job for up to 12 months. Earnings increased significantly after leaving the program. Source: Stephen H. Bell, Nancy R. Burstein, and Larry L. Orr, *Evaluation of the AFDC Homemaker-Home Health Aide Demonstrations* (Washington, D.C.: Abt Associates, 1987).

30 Cindy Redcross et al., *More Than a Job: Final Results from the Evaluation of the Center for Employment Opportunities (CEO) Transitional Jobs Program* (New York: MDRC, 2012).

31 Dan Bloom, *Testing the Next Generation of Subsidized Employment Programs: An Introduction to the Subsidized and Transitional Employment Demonstration and the Enhanced Transitional Jobs Demonstration* (New York: MDRC, 2015); Erin Jacobs, *Returning to Work After Prison: Final Results from the Transitional Jobs Reentry Demonstration* (New York: MDRC, 2012); Erin Jacobs and Dan Bloom, *Alternative Employment Strategies for Hard-to-Employ TANF Recipients: Final Results from a Test of Transitional Jobs and Preemployment Services in Philadelphia* (New York: MDRC, 2011).

32 Dan Bloom, *Testing the Next Generation of Subsidized Employment Programs: An Introduction to the Subsidized and Transitional Employment Demonstration and the Enhanced Transitional Jobs Demonstration* (New York: MDRC, 2015); Cindy Redcross et al., *The Enhanced Transitional Jobs Demonstration: Implementation and Early Impacts of the Next Generation of Subsidized Employment Programs* (New York: MDRC, 2016).

33 Nan Maxwell and Dana Rotz, "Potential Assistance for Disadvantaged Workers: Employment Social Enterprises," *Journal of Labor Research* 38, no. 2 (2017): 145-168.

34 Dana Rotz, Nan Maxwell, and Adam Dunn, *Economic Self-Sufficiency and Life Stability One Year after Starting a Social Enterprise Job* (Oakland, Calif.: Mathematica Policy Research, 2015); Nan Maxwell and Dana Rotz, "Building the Employment and Economic Self-Sufficiency of the Disadvantaged: The Potential of Social Enterprises," working paper (Oakland, Calif.: Mathematica Policy Research, 2015); Maxwell and Rotz, "Potential Assistance for Disadvantaged Workers."

35 Toby Herr and Suzanne L. Wagner, *Persistent Non-workers Among the Long-Term Unemployed* (Chicago: Erickson Institute, 2011).



36 Dan Bloom, *Transitional Jobs: Background, Program Models, and Evaluation Evidence* (New York: MDRC, 2010).

37 Sheena McConnell et al., *Providing Public Workforce Services to Job Seekers: 15-month Impact Findings on the WIA Adult and Dislocated Worker Programs* (Washington, D.C.: Mathematica Policy Research, 2016).

38 Randall W. Eberts, "Using Statistical Assessment Tools to Target Services to Work First Participants," in *Targeting Employment Services*, eds. Randall W. Eberts, Christopher J. O'Leary, and Stephen A. Wandner (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 2002); Randall W. Eberts, "Toward a More Intelligent Workforce Development System" in *Transforming U.S. Workforce Development Policies for the 21st Century*, eds. Carl Van Horn, Tammy Edwards, and Todd Greene (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 2015).

39 Irma Perez-Johnson, Quinn Moore, and Robert Santillano, *Improving the Effectiveness of Individual Training Accounts: Long-Term Findings from an Experimental Evaluation of Three Service Delivery Models* (Princeton, N.J.: Mathematica Policy Research, 2011).

40 Maureen Conway and Robert P. Giloth, "Introduction," and Fred Dedrick, "Industry Partnerships: Theory and Practice," in *Connecting People to Work: Workforce Intermediaries and Sector Strategies*, eds. Conway and Giloth (New York: American Assembly/Columbia University, 2014); Christopher T. King and Heath J. Prince, "Moving Sectoral and Career Pathway Programs from Promise to Scale," in *Transforming U.S. Workforce Development Policies for the 21st Century*, eds. Carl Van Horn, Tammy Edwards, and Todd Greene (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 2015).

41 Insight Center for Community Economic Development, National Network of Sector Partners, *Sector Snapshot: A Profile of Sector Initiatives, 2010* (2010); Harry Holzer and Robert I. Lerman, *America's Forgotten Middle-Skill Jobs: Education and Training Requirements in the Next Decade and Beyond* (Washington, D.C.: Urban Institute, 2008).

42 Sheila Maguire et al., *Tuning In to Local Labor Markets: Findings from the Sectoral Employment Impact Study* (Philadelphia: Public/Private Ventures, 2010).

43 Richard Hendra et al., *Encouraging Evidence on a Sector-Focused Advancement Strategy* (New York: MDRC, 2016).

44 Mark Elliott and Anne Roder, *Escalating Gains: Project QUEST'S Sectoral Strategy Pays Off* (New York: Economic Mobility Corporation, 2017).

45 Christopher T. King and Heath J. Prince, "Moving Sectoral and Career Pathway Programs from Promise to Scale"; National Governors Association, Corporation for a Skilled Workforce, and National Skills Coalition, *State Sector Strategies Coming of Age: Implications for State Workforce Policymakers* (2013).

46 Harry Holzer, "The U.S. Approach to Higher Education and Workforce Development," and Stephen A. Wandner, "The Future of the Public Workforce System in a Time of Dwindling Resources," in *Transforming U.S. Workforce Development Policies for the 21st Century*, eds. Carl Van Horn, Tammy Edwards, and Todd Greene (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 2015); Fredrik Andersson et al., "Does Federally-Funded Job Training Work? Nonexperimental Estimates of WIA Training Impacts Using Longitudinal Data on Workers and Firms," working paper (Cambridge, Mass.: NBER, 2013).

47 FY 2017 Department of Labor, Budget in Brief. n.d.; Office of Management and Budget. 2017. Budget of the U.S. Government; Appendix; fiscal 2018. Executive Office of the President of the United States.

48 Social Policy Research Associates, *PY 2015 WIASRD Data Book* (2017).

49 Stephen A. Wandner, "The Future of the Public Workforce System in a Time of Dwindling Resources."

50 P. Lindsay Chase-Landsdale and Jeanne Brooks-Gun, "Two-Generation Programs in the Twenty-First Century," in *The Future of Children* 24, no. 1 (2014): 13-39; Christopher T. King, Rheagan Coffey,

and Tara C. Smith, *Promoting Two-Generation Strategies: A Getting Started Guide for State and Local Policy Makers* (Austin, Texas: Ray Marshall Center, University of Texas at Austin, and New York: Foundation for Child Development, 2013).

51 P. Lindsay Chase-Landsdale et al., "What Are the Effects of Pairing Head Start Services for Children with Career Pathway Training for Parents?" issue brief (Washington, D.C.: Aspen Institute, 2017).

52 Robert Lerman, "Can the United States Expand Apprenticeship? Lessons from Experience" IZA Policy Paper No. 46 (Bonn: IZA, 2012); Robert Lerman, "Expanding Apprenticeship Opportunities in the United States" (Washington, D.C.: Brookings Institution, 2014).

53 Debbie Reed et al., *An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States* (Oakland, Calif.: Mathematica Policy Research, 2012).

54 Susan Helper et al., *The Benefits and Costs of Apprenticeship: A Business Perspective* (Cleveland: Case Western Reserve University, and Washington, D.C.: U.S. Department of Commerce, 2016).

55 Organization for Economic Cooperation and Development, *Learning for Jobs: Synthesis Report of the OECD Reviews of Vocational Education and Training* (Paris, 2010).

56 Susan Scrivener et al., *Doubling Graduation Rates: Three-Year Effects of CUNY's Accelerated Study in Associate Programs (ASAP) for Developmental Education Students* (New York: MDRC, 2015); Susan Scrivener and Michael J. Weiss, "More Graduates: Two-Year Results from an Evaluation of Accelerated Study in Associate Programs (ASAP) for Developmental Education Students," policy brief (New York: MDRC, 2013); Susan Scrivener, Michael J. Weiss, and Colleen Sommo, *What Can a Multifaceted Program Do for Community College Students?* (New York: MDRC, 2012).

57 Colleen Sommo and Alyssa Ratledge, "Bringing CUNY Accelerated Study in Associate Programs (ASAP) to Ohio," policy brief (New York: MDRC, 2016).

58 Amy Liu, *Remaking Economic Development: The Markets and Civics of Continuous Growth and Prosperity* (Washington, D.C.: Brookings Institution, 2016).

59 Council of Economic Advisers, Executive Office of the President, "Active Labor Market Policies: Theory and Evidence for What Works," issue brief (2016).

60 U.S. Department of Labor, Training and Guidance Letter 3-14, "Implementing a Job-Driven Workforce System" (2014); U.S. Department of Labor, Training and Guidance Letter 19-14, "Vision for the Workforce System and Initial Implementation of the Workforce Innovation and Opportunity Act" (2015).

61 David Autor, David Dorn, and Gordon H. Hanson, "Untangling Trade and Technology: Evidence from Local Labour Markets," *the Economic Journal* 125, issue 584 (2015): 621-646.

62 David Autor, David Dorn, and Gordon H. Hanson, "The China Shock: Learning from Labor-Market Adjustment to Large Changes in Trade," *Annual Review of Economics* 8 (2016): 205-240.

63 Executive Office of the President, *Artificial Intelligence, Automation, and the Economy* (2016); Robert Litan, "Wage Insurance: A Potentially Bipartisan Way to Help the Middle Class" (Washington, D.C.: Brookings Institution, 2015); Larry Good and Ed Strong, "Reimagining Workforce Policy in the United States," and Stephen Crawford and Robert Sheets, "Creating and Communicating Critical Information about Workforce Credentials," in *Transforming U.S. Workforce Development Policies*, eds. Carl Van Horn, Tammy Edwards, and Todd Greene (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 2015).

64 We weighed using Current Population Survey (CPS) microdata against American Community Survey (ACS) Public-Use Microdata Samples (PUMS). The CPS provides rich detail about an individual's labor force status and is the country's main source of labor statistics, but it is too small to produce estimates for local jurisdictions. CPS is a monthly survey of 60,000 households. Technical documentation recommends that data users produce estimates only for states and a dozen large metropolitan areas. The ACS does not provide as much detail about labor force status and differs from the CPS in its estimates of various labor force statistics, but is conducted on a large enough sample

that it permits us to estimate local characteristics. The ACS surveys 3.5 million households each year. Although the Census Bureau does not provide specific guidance about the minimum number of unweighted observations needed to produce accurate estimates, they collapse cells containing fewer than 10 observations, per correspondence. We considered using 2011-2015 five-year data, for which the Census Bureau provides appropriate weights, but ultimately decided not to given that data from 2011 use vintage-2000 PUMAs, which would further muddy geographic assignments as described in the next section.

65 "2010 PUMA Equivalency Files," *Census Bureau*, <https://www.census.gov/geo/reference/puma.html>.

66 Glenn W. Milligan, "Clustering Validation: Results and Implications for Applied Analyses," in *Clustering and Classification*, eds. P. Arabie, L.J. Hubert, and G. De Soete (Singapore: World Scientific Publishing, 1996).

67 Brian S. Everitt, Sabine Landau, Morven Leese, and Daniel Stahl, *Cluster Analysis*, 5th ed. (London: John Wiley & Sons, 2011).

68 Christian Hennig, Marina Meila, Fionn Murtagh, and Roberto Rocci, eds., *The Handbook of Cluster Analysis* (Boca Raton, Fla.: Taylor & Francis, 2016), 706.

69 Hennig et al., 708.

70 Hennig et al., 710.

71 "American Community Survey and Puerto Rico Community Survey 2015 Subject Definitions," *Census Bureau*, [https://www2.census.gov/programs-surveys/acs/tech\\_docs/subject\\_definitions/2015/ACSSubjectDefinitions.pdf](https://www2.census.gov/programs-surveys/acs/tech_docs/subject_definitions/2015/ACSSubjectDefinitions.pdf).

72 "Family Interrelationships," *IPUMS User's Guide*, <https://usa.ipums.org/usa/chapter5/chapter5.shtml>.

73 Glenn W. Milligan and Martha C. Cooper, "A Study of Standardization of Variables in Cluster Analysis," *Journal of Classification* 5, no. 2 (1988): 181. <http://link.springer.com/article/10.1007/BF01897163>.

74 J.C. Gower, "A General Coefficient of Similarity and Some of Its Properties," *Biometrics* 27, no. 4 (1971): 857-871. [https://www.jstor.org/stable/2528823?seq=1#page\\_scan\\_tab\\_contents](https://www.jstor.org/stable/2528823?seq=1#page_scan_tab_contents).

75 Hennig et al. write, "Generally, dissimilarity measures are a suitable basis for clustering if the cluster concept is mainly based on the idea that similar objects should be grouped together and dissimilar objects should be in different clusters" (710).

76 "Option for similarity and dissimilarity measures," *Stata 14 reference manual*, [http://www.statcom/manuals14/mvmeasure\\_option.pdf#mvmeasure\\_option](http://www.statcom/manuals14/mvmeasure_option.pdf#mvmeasure_option).

77 A.D. Gordon, "A Review of Hierarchical Classification," *Journal of the Royal Statistical Society* 150, no. 2 (1987). <http://www.jstor.org/stable/2981629>.

78 Brendan Halpin, "Cluster Analysis Stopping Rules in Stata," University of Limerick Department of Sociology Working Paper Series (July 2016), <http://uisites.ul.ie/sociology/sites/default/files/wp2016-01.pdf>; and M. Studer, G. Ritschard, A. Gabadinho, and N.S. Muller, "Discrepancy Analysis of State Sequences," *Sociological Methods and Research* 40, no. 3 (2011): 471-510.

79 Glenn W. Milligan and Martha C. Cooper, "An Examination of Procedures for Determining the Number of Clusters in a Data Set," *Psychometrika* 50, no. 2 (1985): 159-179, <http://link.springer.com/article/10.1007/bf02294245>; and R. Mojena, "Hierarchical Grouping Methods and Stopping Rules: An Evaluation," *The Computer Journal* 20, no. 4 (1977): 359-363. [https://www.researchgate.net/profile/R\\_Mojena/publication/220459302\\_Hierarchical\\_Grouping\\_Methods\\_and\\_Stopping\\_Rules\\_An\\_EvaluationThe\\_Computer\\_Journal20\\_359-363/links/5532a3d90cf2f2a588b05403.pdf](https://www.researchgate.net/profile/R_Mojena/publication/220459302_Hierarchical_Grouping_Methods_and_Stopping_Rules_An_EvaluationThe_Computer_Journal20_359-363/links/5532a3d90cf2f2a588b05403.pdf)

80 "Hierarchical cluster analysis," *Stata 14 reference manual*, <http://www.stata.com/manuals/mvclusterlinkage.pdf>.

81 See, for example, Brian S. Everitt, Sabine Landau, Morven Leese, and Daniel Stahl, *Cluster Analysis*, 5th ed. (London: John Wiley & Sons, 2011).

## Acknowledgments

The Brookings Metropolitan Policy Program gratefully acknowledges Pete and Leslie Higgins for their support of this research. Pete Higgins serves on the Board of Trustees of the Brookings Institution. The Program is also grateful to the Metropolitan Council, a network of business, civic, and philanthropic leaders who act as financial and intellectual partners of the Metro Program.

The authors thank the many colleagues and organizations who provided valuable feedback on early previews of the research (listed in alphabetical order): KentuckianaWorks; Mayor's Office of Workforce Development (Baltimore); National Association of Workforce Boards; National League of Cities; National Skills Coalition; National Youth Employment Coalition; multiple agencies and offices within King County (WA) government; Raikes Foundation; the Road Map Project; Seattle Regional Partnership; United Way of King County; and the Workforce Development Council of Seattle-King County.

The authors also thank the following individuals for their helpful and constructive comments on an earlier draft of this report: Michael Gritton, Harry Holzer, Richard Kazis, and colleagues within the Brookings Metropolitan Policy Program; and the following individuals for invaluable reactions to the early methodology: Alex Engler, Chandler Felt, Robin Ghertner, Artem Gulish, Nicole Smith, Jeff Strohl, and Jesus Trujillo. Lastly, they thank Nicole Prchal Svajlenka for early work on this project, and Alex Norwood, Tobias Levy, and Ethan Andrews for their research assistance.

## About the Metropolitan Policy Program at Brookings

The Metropolitan Policy Program at Brookings delivers research and solutions to help metropolitan leaders build an advanced economy that works for all.

To learn more visit [www.brookings.edu/metro](http://www.brookings.edu/metro).

The Brookings Institution is a nonprofit organization devoted to independent research and policy solutions. Its mission is to conduct high-quality, independent research and, based on that research, to provide innovative, practical recommendations for policymakers and the public. The conclusions and recommendations of any Brookings publication are solely those of its author(s), and do not reflect the views of the Institution, its management, or its other scholars. Brookings recognizes that the value it provides is in its absolute commitment to quality, independence, and impact. Activities supported by its donors reflect this commitment.

## BROOKINGS

1775 Massachusetts Avenue, NW

Washington, D.C. 20036-2188

Telephone: 202.797.6000

Fax: 202.797.6004

[www.brookings.edu/metro](http://www.brookings.edu/metro)

### **Martha Ross**

Fellow

Metropolitan Policy Program at Brookings

[mross@brookings.edu](mailto:mross@brookings.edu)