MEET *the* LOW-WAGE WORKFORCE

MARTHA ROSS
NICOLE BATEMAN

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Introduction

As globalization and automation reshape the labor market, workers today must navigate a changing economic landscape. Some people and places are poised to do well; others, less so. One thing that is clear is these economic forces favor workers who have higher levels of education and earn higher wages. Low-wage workers risk becoming collateral damage, struggling to find their footing in the labor market and an educational system riddled with inequities.

In some cases, holding a low-wage job is not particularly problematic: Think of a college student on her way to a degree, or a 23-year-old with a bachelor's degree in an entry-level position with a strong career arc ahead of him, or a teacher's assistant with a higher-earning spouse. In these cases, a low-wage job is a temporary way station or not the worker's primary source of financial support.

But for people supporting themselves and their families on low-wage jobs, the picture is grimmer. Think of a nursing assistant with two children, or someone laid off from a maintenance job who can only find lower-paying work, or a 50-year-old hospital housekeeper with no retirement savings.

This paper strives to show the diversity among low-wage workers at the national and regional levels, in order to better inform strategies to help them improve their employment prospects. A foundational issue, however, is *which* low-wage workers to assist. Conceptually, it is clear: Public policy has a role in assisting economically vulnerable low-wage workers who rely entirely or substantially on those low wages to support themselves and their families, particularly if they appear to be unlikely to advance to higher-paid jobs. Pinpointing this population in the data, however, is more challenging. Although there are common approaches, there is no consensus definition of a low-wage worker. Additionally, population-level data do not provide a clear yes-or-no answer as to whether a low-wage job is a way station or a permanent destination for any given person, although it is possible to make inferences based on factors such as age and education.

Research on low-wage workers typically addresses this problem by limiting the workers considered to targeted subsets:

- Workers ages 25-54 (to capture people of prime working age when they are most likely to work to support themselves and their families)
- Those working full time year-round (since financial sustainability is not generally expected of part-time work in the same way it is expected of full-time work)
- Those with family income below the federal poverty line or an increment thereof, such as 150% of the poverty line (to capture those with low incomes)

We chose a different approach: including almost everyone who earns a low hourly wage in order to provide a fuller picture of this large, diverse group of workers and to highlight their extensive role in the labor market. We erred on the side of inclusion, but then segmented the population into nine groups based on the variables we judged as providing the simplest yet most comprehensive framework to assess employment

prospects: age, educational attainment, and school enrollment. A 48-year-old is likely to face and make different labor market choices than a 24-year-old: The older worker is more likely to have family responsibilities, work full time, face age discrimination, and is less likely to be in school. Meanwhile, workers with lower levels of education, already at a disadvantage in the labor market, were disproportionately hurt by the Great Recession. Most jobs lost during the recession were held by workers with a high school diploma or less, while nearly three-quarters of the jobs created since then have gone to workers with a bachelor's degree or higher.[1] Lastly, among young adults ages 18-24, the higher likelihood of school enrollment points to the need for a balancing act between education and work, as well as strategies to encourage continued school attendance and graduation.

Of course, age, education, and school enrollment are not the only attributes that affect labor market prospects and should inform policy and strategy, and we report on other factors as well. Race and gender matter, too: There is ample evidence of discrimination along these lines, not to mention upstream influences on educational attainment and choice of study that shape occupational choices. Family composition is important: For parents, finding decent and affordable child care can be a requirement for employment. A person's occupation at a given point affects her later prospects, as different occupations offer more or fewer opportunities for advancement.

Geography also carries considerable weight. Places offer different types of job opportunities based on their industrial base and economic vitality, and to explore this, we produce demographic and occupational data on low-wage workers at the regional level. It is local leaders in the public, private, and social sectors who develop and execute strategies to help people find work and advance to better jobs, and we hope that the report provides useful insight as they strive to develop inclusive economies.

The report proceeds in four sections. First, it discusses how we define low-wage workers for purposes of this analysis, and briefly describes how we segmented that population into smaller groups of individuals likely to face similar labor market prospects. Then we describe low-wage workers overall, and introduce the nine clusters of low-wage workers with fictionalized examples of people in each group. Third, we examine variation among low-wage workers by metropolitan area, and how that relates to industrial composition and demographics. We conclude with recommendations to support economic mobility for low-wage workers.

Defining low-wage workers

There is no consensus definition of a low-wage worker, although there are several common approaches. Creating a definition involves two key decisions: 1) determining who counts as a worker and 2) setting the earnings or dollar threshold that differentiates a low-wage worker from other workers. Based on those decisions, the definition can either be expansive and encompass more workers, or restrictive and include fewer.

We collaborated with Marcela Escobari, Ian Seyal, and Michael Meaney from the Brookings Global Economy and Development program to develop the methodology to answer these questions, and they use this shared definition in their companion report, "Realism About Reskilling: Upgrading the career prospects of America's low-wage workers." To identify low-wage workers, we use the Census Bureau's 2012-2016 American Community Survey 5-year Public Use Microdata Sample. The large sample size from five years of pooled data allows us to conduct relatively detailed analysis at the regional level: We profile low-wage workers at the national level and within 373 metropolitan areas. However, there is a trade-off with timeliness, and our data do not allow us to capture the most recent wage trends. While there was a small increase in real wages for production and nonsupervisory employees between 2017-2019, we think it is unlikely that our findings would change significantly if we considered more recent wage data.[2]

Defining workers

To identify workers, we begin with all civilian, non-institutionalized 18- to 64-year-olds who worked at some point during the last year and who are currently in the labor force (either employed or unemployed). We do not limit our analysis to people who worked full time, year-round—as others do—to account for the above-average rates of turnover among workers earning low hourly wages.[3] By including these workers, we capture those who experienced spells of unemployment or who were unemployed at the time of the survey, but earned low wages at some point during the year.

From these 18- to 64-year-olds who are currently in the labor force and worked at some point during the last year, we exclude three groups:

- **Some students**: Although 18- to 24-year-olds are often not considered in analyses of low-wage workers, we include them because many young people need to work and support themselves or their families. However, students have different employment patterns and expectations than non-students overall, and within the student population, "traditional" college students differ in their labor market experiences from students who are older, attend part time, may be financially independent, or have children.[4] To account for these differences in work patterns, we exclude a few different student populations from the analysis:
  - We exclude all graduate or professional students, since their educational pathway suggests they will have strong employment prospects.

- We also exclude most traditional high school and college students, defined as those working less than 14 weeks over the previous year (which could indicate seasonal work during summers and vacations), those living in dormitories, and high school students living at home.

  We keep high school students who are not living at home and students not living in dorms who worked more than 14 weeks. We realize this is an imperfect proxy of "non-traditional" students, but based on the data we cannot tell if someone is financially independent, enrolled part time, or has other characteristics putting them at risk of leaving school without a degree. However, since so many students leave postsecondary education without earning a degree, we do not want to use school enrollment at a given point in time as a definitive marker of future labor market success.

- **The self-employed or those with self-employment income**. We also exclude those who reported being self-employed or earning self-employment income and those who worked without pay in a family business or farm. Self-employed and unpaid family workers have different earnings dynamics than wage and salaried workers, making direct comparisons difficult. Among the self-employed, it is less clear what is a return to labor versus a return to capital, and the self-employed may show negative earnings even as they are paying themselves, if their expenses or investments exceed their gross receipts.
- **Observations with data quality concerns.** Lastly, we remove some observations from the analysis due to data quality concerns, namely those earning very high or very low hourly wages and those who worked more than 98 hours a week over the previous year.[5]

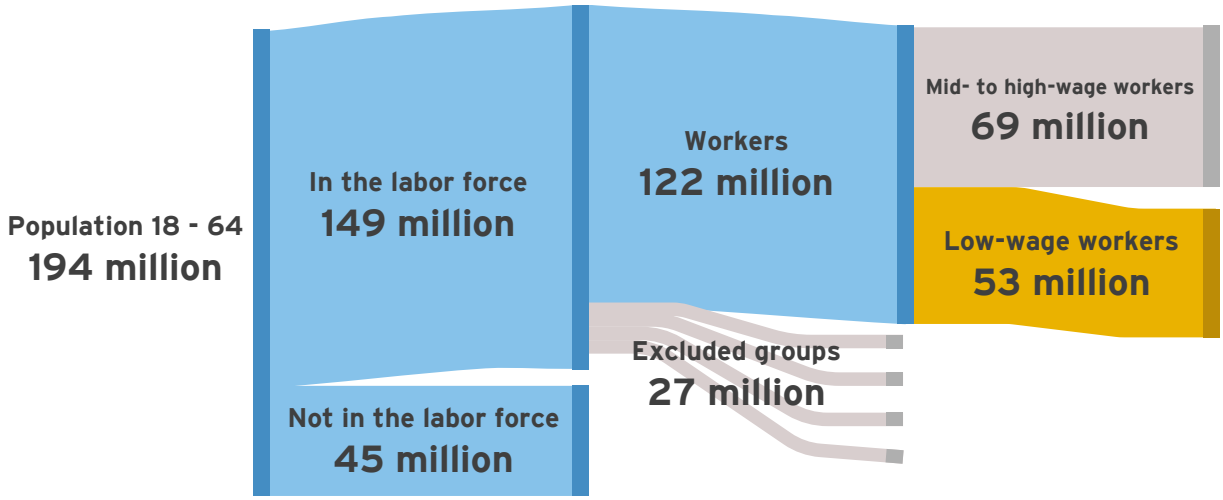
We refer to those who meet our starting criteria and remain after the exclusions as "workers."

Defining a low-wage threshold

From our pool of workers, we compare hourly wages to a low-wage threshold.[6] While there is no universal definition of a low-wage worker, we use the often-employed threshold of two-thirds

FIGURE 1

Illustration of how we identified low-wage workers



Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

median wages for full-time/full-year workers, with slight modification. When determining median wages, we consider only wages for males. This raises the threshold, since men earn more than women on average, but using the typical male worker as the benchmark limits the extent to which gender inequality in wages affects our definition. While this is a less common approach to take, we are not the first to do so.[7]

We also account for variation in the cost of living across the country by adjusting the wage threshold using the Bureau of Economic Analysis's Regional Price Parities (RPPs) which provide unique adjustments for the buying power of a dollar in individual metropolitan areas and states.[8] The average of the national threshold across our five years of data, in 2016 real dollars, is $16.03, and the adjusted thresholds range from $12.54 in Beckley, W.Va. to $20.02 in San Jose, Calif.[9] If the hourly wages of an observation are below the low-wage threshold we determined for their location, that observation is included in our sample of low-wage workers. Of course, using a relative threshold means a worker in one place may be included in our sample of low-wage workers while someone with the same wage may be excluded in another place. We consider this sensitivity to local cost of living a strength of this analysis.

TABLE 1

Average low-wage thresholds in select metro areas

Metro name	Five-year average
Nation	*$16.03*
Beckley, WV	$12.54
Kingsport-Bristol-Bristol, TN-VA	$13.76
Sioux City, IA-NE-SD	$14.27
Jackson, MS	$14.49
Longview, TX	$14.67
Lake Havasu City-Kingman, AZ	$14.95
Pittsburgh, PA	$15.14
Detroit-Warren-Dearborn, MI	$15.50
Norwich-New London, CT	$16.24
San Jose-Sunnyvale-Santa Clara, CA	$20.02

Note: Dollar values are adjusted to 2016 real dollars
Source: Based on U.S. Census Bureau, American Community Survey 1-year estimates (2012-2016), Table S2002, adjusted by Bureau of Economic Analysis' Regional Price Parities for "all items".

Segmenting low-wage workers into nine groups

Borrowing the logic of cluster analysis and market segmentation, we divide low-wage workers into nine mutually exclusive groups defined by shared, labor-market-relevant characteristics. We then create fictionalized personas to illustrate their different circumstances.

We formulate our groups based on three variables that a) are well-established in existing research as important to labor market outcomes, and b) we judge as providing the simplest and most comprehensive assessment of employment prospects: age, educational attainment, and school enrollment.

Age is a fundamental organizing principle for individuals and society. It shapes people's activities, roles, and preferences, as well as institutions and policies. Education, parenting, employment, and retirement are all heavily age-graded.[10] To account for these differences, we divide the low-wage population into three age categories: 18-24, 25-50, and 51-64. Young workers (18-24) often balance work and school and are more likely to experience periods of unemployment or job changes than other workers, while people in their prime working years (25-50) are more likely to work full time and raise a family. Workers over 50 may be thinking about retirement or facing age discrimination in the labor market.[11]

Likewise, it is hard to overstate the importance of **educational attainment** to worker experiences in the labor market. Unemployment rates decrease with additional education, and study after study has found workers with postsecondary degrees earn more than those without.[12] One report estimates the lifetime wage returns to be 22% higher for associate degrees, 32% higher for bachelor's degrees, and 46% higher for graduate degrees, compared to high school graduates.[13]

In addition to age and educational attainment, we also consider **school enrollment** when grouping 18- to 24-year-olds, since so many in this age bracket are students with different work patterns than those not enrolled in school.[14] We apply the school enrollment filter only to 18- to 24-year-olds because this age group accounts for the majority (nearly 70%) of low-wage workers enrolled in school. Additionally, messages to this age group about the importance of further education beyond high school are so pervasive that school enrollment is a rough approximation of whether a young person is on track or not.

Of course, age, education, and school enrollment are not the only factors shaping people's job prospects. Importantly, however, they do apply across demographic groups. Men and women; people who are Black, Latino or Hispanic, white, or Asian American; parents and non-parents; people with and without disabilities—their choices are informed by their age and education in ways that are relatively predictable and generalizable. Our guiding principle, as noted above, was to create the simplest and most comprehensive typology based on evidence about what affects employment. We concluded that the combination of age and educational status provides more information about a person's job prospects than measures of age and gender, age and race, or other combinations. For example, without knowing their educational levels, it is difficult to conclude much about the employment prospects of a 35-year-old man, a 35-year-old woman, a 35-year-old Black person, or 35-year-old white person. In a society characterized by structural racism and sexism, it is fair to assume that people of color have experienced more discrimination and disadvantages than white people, and that women have experienced more than men. Nonetheless, that disadvantage can manifest in a variety of ways, which are not observable from the Census data. However, it is much more certain that a 35-year-old with a bachelor's degree faces a different choice set than one without a bachelor's degree. Similarly, we could have grouped people by education and race. But age is a key issue: A Black worker with only a high school diploma who is 24 will likely make different choices and face different educational and employment options than one who is 40, say, or 63. We considered adding race, gender, or other characteristics to the list of measures we used to create the clusters, but determined the multiplying effects on the number of groups would make the typology unwieldy and less useful.

In the end, the data we compiled provides a dizzying array of possibilities for interpretation. We hope people take advantage of the data appendix to explore the data themselves.

For more detailed information about how we define workers, set the low-wage threshold, or identify our sample population, please see the technical appendix available for download.

Describing low-wage workers

More than 53 million people—44% of all workers aged 18-64—are low-wage workers by our criteria. They earn median hourly wages of $10.22 and median annual earnings of $17,950.

These 53 million workers earn less than our hourly earnings threshold of $16.03 at the national level, adjusted for cost of living differences by region, ranging from $12.54 in Beckley, W.Va. to $20.02 in San Jose, Calif. The national threshold represents two-thirds the national median hourly wages for men working full-time year-round. In the description below, we sometimes compare low-wage workers to mid/high-wage workers, referring to workers with hourly earnings above our threshold.

Demographics

Low-wage workers are a racially diverse group, and disproportionately female. Fifty-two percent are white, 25% are Latino or Hispanic, 15% are Black, and 5% are Asian American. Both Latino or Hispanic and Black workers are over-represented relative to their share of the total workforce, while whites and Asian Americans are under-represented. Females account for 54% of low-wage workers, higher than their total share of the workforce (48%).

Nearly two-thirds of low-wage workers are in their prime working years of 25-54, and nearly half of this group (40%) are raising children. Given the links between education and earnings, it is not surprising that low-wage workers have lower levels of education than those earning mid/high wages. Fourteen percent of low-wage workers have a bachelor's degree, compared to 44% among mid/high-wage workers, and nearly half (49%) have a high school diploma or less, compared to 25% among mid/high-wage workers.

Fifty-seven percent of low-wage workers work full time year-round, considerably lower than the share of mid/high-wage workers (81%). Among those working less than full time year-round, it is not clear if this is voluntary or involuntary, or if it reflects part-time work throughout the year or full-time work for part of the year. For some low-wage workers, such as students and caretakers, part-time work is probably desirable. But given the disproportionately high rates of churn in the low-wage labor market, it is likely that spells of involuntary non-employment play a significant role, suggesting a more tenuous connection to the labor market.[15]

By definition, low-wage workers face a greater likelihood of experiencing economic disadvantage than mid/high-wage workers based on their lower earnings. Indeed, 30% of low-wage workers live below 150% of the federal poverty line (about $36,000 for a family of four), compared to only 3% of mid/high-wage workers. They are also much more likely to receive safety net assistance (26%, compared to 8%).

We estimate that half of low-wage workers are primary earners or contribute substantially to family living expenses. Twenty-six percent of low-wage workers are the sole earners in their families, with median family earnings of $20,400. Forty-four percent of this group live below 150% of the federal poverty line, and half of sole earners are caring for children. Another 25% of all low-wage workers live in families in which all workers earn low wages. Median family earnings for this group are $41,700, and 30% live below 150% of the poverty line. It disproportionately includes foreign-born individuals (33%) and those with limited English proficiency (24%).

TABLE 2

Descriptive statistics of mid/high-wage workers and low-wage workers, ages 18 - 64

	Mid/high-wage workers	Low-wage workers
Share of all workers	56.3%	43.7%
Employment status^		
Employed	97.6%	94.4%
Unemployed	2.4%	5.6%
Worked full time/year-round	81.4%	57.4%
Median hourly earnings	$26.65	$10.22
Median annual earnings	$54,410	$17,953
Male	55.8%	46.3%
Age^		
18-24	4.0%	24.3%
25-34	22.1%	27.5%
35-44	26.0%	18.3%
45-54	27.7%	17.4%
55-64	20.2%	12.5%
Race/ethnicity^		
White, non-Latino or Hispanic	70.6%	52.4%
Black, non-Latino or Hispanic	9.9%	14.8%
Latino or Hispanic	11.4%	24.9%
Asian American, non-Latino or Hispanic	6.0%	5.1%
All other races, non-Latino or Hispanic	2.1%	2.8%
Foreign-born	13.6%	21.3%
Speaks English less than 'very well'	5.0%	14.4%
Enrolled in school	3.6%	12.3%
Highest level of school completed^		
Less than high school diploma	4.4%	14.6%
High school diploma or equivalent	20.2%	34.0%
Some college	20.9%	28.8%
Associate degree	10.4%	8.3%
Bachelor's degree or more	44.1%	14.3%
Sole earner in family	26.5%	26.0%
Multiple earners in family		
Low-wage worker in a family with mid- to high-wage worker(s) (Secondary earner)	-	28.8%
Low-wage worker in a family with other low-wage workers	-	24.8%
Report any disability	4.4%	6.3%
Married	62.1%	37.6%
Single parents	6.4%	10.7%
Caring for children	37.7%	28.6%
Below 150% of federal poverty line	3.0%	30.1%
Receives safety net assistance	7.5%	25.7%

Notes: Dollar values are adjusted to 2016 real dollars using the ACS-provided adjustment variable
All differences between mid/high-wage workers and low-wage workers are statistically significant ($p < .01$)
^ Variables within this category may not add to 100% because of rounding
Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Not all low-wage workers are disadvantaged, however. Fourteen percent have a bachelor's degree and an additional 8% have an associate degree. While there are no guarantees in the labor market, these postsecondary degrees greatly increase the possibility of higher wages in the future. And young people make up a disproportionately large share of the low-wage workforce, at 24%. Younger workers have better chances of experiencing earnings growth as they gain experience—particularly the subset who have obtained a college degree or other postsecondary credential. Lastly, an estimated 29% of low-wage workers are secondary earners, meaning they live in families with at least one higher-earning wage earner. Median family earnings for this group are $84,900, and only 7% are below 150% of the poverty line. These individuals are less dependent on their wages alone to pay for basic needs such as food, housing, and health care.[16]

Occupations

Twenty-five million—or nearly half (47%)—of all low-wage workers are in just 10 occupation groups. The occupation employing the most low-wage workers is retail sales, accounting for 4.5 million people, or 8% of all low-wage workers.[17]

Most of these occupations are dominated by low-wage workers, and in five of them, more than 75% of all workers earn low wages. These include retail sales workers, cooks and food preparation workers, building cleaning workers, food and beverage serving workers, and personal care and service workers (such as child care workers and patient care assistants). There are also clear occupational differences by gender. Male low-wage workers are much more likely to work in the construction trades and operate motor vehicles, while low-wage female workers are much more likely to work in administrative occupations and as nursing assistants.

TABLE 3

Nearly half of low-wage workers are concentrated in 10 occupation groups

Occupation group	Number of low-wage workers	Share of all low-wage workers in occupation	Share of workers in occupation who are low-wage
Retail sales workers	4,497,110	8.4%	76.4%
Information and records clerks	2,873,850	5.4%	60.5%
Cooks and food preparation workers	2,558,150	4.8%	87.4%
Building cleaning and pest control workers	2,478,910	4.7%	75.1%
Material moving workers	2,446,960	4.6%	65.8%
Food and beverage serving workers	2,391,930	4.5%	79.6%
Construction trades workers	2,272,380	4.3%	46.7%
Material recording, scheduling, dispatching, and distributing workers	1,930,080	3.6%	56.5%
Motor vehicle operators	1,811,700	3.4%	50.1%
Other personal care and service workers	1,790,780	3.4%	81.0%

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

A note about economically vulnerable workers

LESS VULNERABLE LOW-WAGE WORKERS	MORE VULNERABLE LOW-WAGE WORKERS
• Secondary earners • College students, especially those enrolled full time right out of high school or otherwise are likely to graduate • Have a postsecondary degree or credential • Early in their careers	• Sole earners • Parents, especially single parents • Have low education levels • Involuntarily working part time • Dislocated workers who take a lower-paying job after a layoff • Have a disability • Workers who are older, female, Black, or Latino or Hispanic

Within our low-wage worker population, not all workers are equally vulnerable to economic hardship. Some are likely to move to higher-wage jobs as they gain experience, especially if they have college degrees or other educational credentials such as a certification, or if they are an apprentice.[18] In other cases, wages may not be their only source of financial support: Think of college students or young people whose parents provide financial support, or people who are married to higher-earning spouses. **We consider low-wage workers to be vulnerable to economic hardship if they rely primarily or substantially on their wages to cover basic living expenses, especially if they do not have a clear path to higher wages.**

Demographic characteristics like age and education provide strong insights into whether low-wage workers are economically vulnerable, but they are not definitive. For example, we know that a 45-year-old woman with a high school diploma who works as an administrative assistant is less likely to progress to a higher-paying job than someone who is younger or has more education, suggesting a certain level of vulnerability.[19] However, she will face much more financial pressure if she is the sole earner supporting children, as opposed to a secondary earner in a family. Similarly, a 30-year-old man with some postsecondary education but no degree may have the interpersonal and managerial skills to move up from retail clerk to manager, but also may not.

The traits indicating vulnerability are not always observable in the census data, and they interact with each other in ways that are difficult to catalogue. This is partially why we err on the side of inclusivity in our definition of low-wage workers.

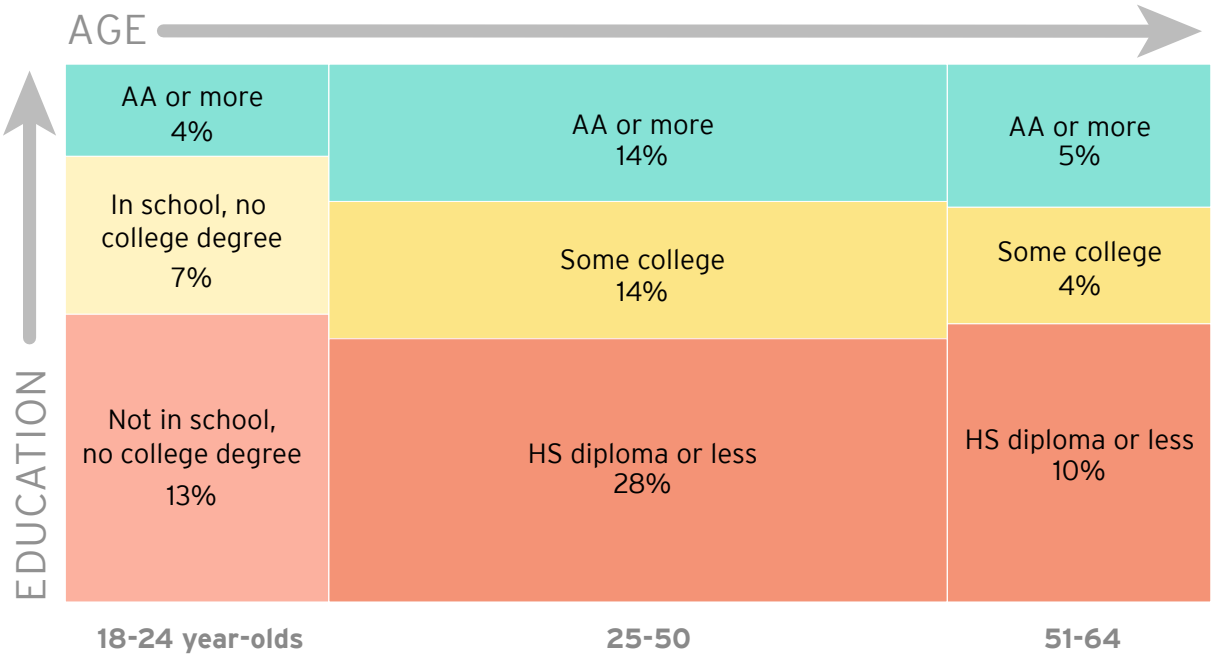
We sorted low-wage workers into nine clusters based on age, education, and school enrollment

Low-wage workers number in the tens of millions, and any group that large includes people in varying circumstances. Many factors affect people's choices, prospects, and behavior in the labor market. Some of these are readily observable or reportable, such as age, gender, school enrollment, race/ethnicity, occupation, and educational attainment. Others are more difficult to ascertain from population-level data, such as interests, skills, family and neighborhood background, presence of a criminal record, many types of disabilities, and so on.

Using the criteria described previously (age, education level, and school enrollment among 18- to 24-year-olds), we segment the low-wage population into nine distinct groups. We discuss each group and their composite personas in greater detail below.

FIGURE 2

Clusters of the low-wage population



Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

TABLE 4

Descriptive statistics of clusters of low-wage workers

	Ages 18-24			Ages 25-50			Ages 51-64		
	Cluster 1	2	3	4	5	6	7	8	9
	Not in school, no degree	In school, no degree	Associate degree or more	High school or less	Some college	Associate degree or more	High school or less	Some college	Associate degree or more
Share of all low-wage workers	13.3%	7.1%	3.8%	27.8%	14.4%	14.3%	10.5%	4.3%	4.5%
Employment status^									
Employed	89.9%	95.4%	95.0%	94.1%	94.5%	95.8%	96.2%	95.9%	95.8%
Unemployed	10.1%	4.6%	5.0%	5.9%	5.5%	4.2%	3.8%	4.1%	4.2%
Worked full time/year-round	46.5%	19.5%	42.3%	64.9%	63.2%	63.3%	65.0%	61.6%	57.0%†
Median hourly earnings	$8.55	$7.95	$9.71	$10.18	$10.93	$11.85	$10.73	$11.39	$11.57
Median annual earnings	$12,672	$8,161	$13,306	$19,009	$20,278	$21,367	$20,076	$20,447	$20,152
Male	56.7%	44.2%	39.5%	54.2%	42.2%	38.0%	42.3%	35.3%	35.7%
Age^									
18-24	100.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
25-34	0.0%	0.0%	0.0%	43.5%	53.9%	53.7%	0.0%	0.0%	0.0%
35-44	0.0%	0.0%	0.0%	35.2%	29.9%	29.8%	0.0%	0.0%	0.0%
45-54	0.0%	0.0%	0.0%	21.4%	16.2%	16.6%	36.0%	34.9%	33.6%
55-64	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	64.0%	65.1%	66.4%
Race/ethnicity^									
White, non-Latino or Hispanic	51.1%	57.7%	67.1%	39.9%	52.8%	60.6%	53.8%	65.8%	68.6%
Black, non-Latino or Hispanic	15.8%	12.4%	9.3%	14.8%†	19.6%	12.9%	14.2%	16.2%	11.2%
Latino or Hispanic	27.1%	21.5%	14.6%	38.7%	20.2%	14.6%	24.1%	11.6%	9.8%
Asian American, non-Latino or Hispanic	2.1%	4.7%	5.6%	4.4%	4.1%	8.9%	6.2%	4.1%	8.3%
All other races, non-Latino or Hispanic	3.9%	3.7%	3.4%	2.2%	3.3%	3.0%	1.7%	2.3%	2.1%
Foreign-born	10.6%	8.1%	7.6%	34.9%	14.6%	18.8%	29.0%	13.5%	20.2%
Speaks English less than 'very well'	6.9%	2.9%	2.6%	27.9%	7.3%	7.9%	23.6%	7.7%	10.5%
Enrolled in school	0.0%	100.0%	33.3%	1.4%	14.4%	8.2%	0.4%	2.9%	2.1%
Highest level of school completed^									
Less than high school diploma	14.1%	1.8%	0.0%	33.6%	0.0%	0.0%	31.3%	0.0%	0.0%
High school diploma or equivalent	54.0%	15.8%	0.0%	66.4%	0.0%	0.0%	68.7%	0.0%	0.0%
Some college	31.8%	82.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%
Associate degree	0.0%	0.0%	41.4%	0.0%	0.0%	35.8%	0.0%	0.0%	35.6%
Bachelor's degree or more	0.0%	0.0%	58.6%	0.0%	0.0%	64.2%	0.0%	0.0%	64.4%
Sole earner in family	20.0%	12.5%	11.8%	30.9%	30.0%	25.1%	29.0%	28.2%	28.8%
Multiple earners in family									
Low-wage worker in a family with mid- to high-wage worker(s) (Secondary earner)	33.7%	42.5%	39.7%	22.0%	27.6%	33.1%	23.4%	26.8%	30.7%
Low-wage worker in a family with other low-wage workers	28.6%	19.6%	16.7%	31.3%	22.8%	18.3%	26.1%	19.7%	18.1%
Report any disability	5.0%	2.9%	2.3%	6.3%†	6.1%	4.1%	11.7%	11.9%	8.9%
Married	10.5%	4.2%	9.5%	43.7%	39.3%	45.1%	58.2%	56.3%	62.5%
Single parents	9.7%	3.7%	3.1%	15.9%	18.3%	10.6%*	2.4%	2.6%	2.5%
Caring for children	14.5%	4.9%	5.3%	43.9%	43.9%	38.8%	10.0%	9.7%	13.0%
Below 150% FPL	33.9%	35.2%	26.4%	38.7%	30.3%†	20.8%	23.6%	18.4%	15.7%
Receives safety net assistance	30.9%	17.9%	11.3%	35.1%	28.5%	17.1%	21.7%	16.9%	12.8%

Notes:
Dollar values are adjusted to 2016 real dollars using the ACS-provided adjustment variable
^ Variables within this category may not add to 100% because of rounding
Unless otherwise indicated, the differences between clusters and all low-wage workers are significant (p <.01)
* Significantly different from low-wage workers nationally (p < .05) † Not significantly different from low-wage workers nationally

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Cluster 1: Ages 18-24, not in school, no college degree

7.1 million people

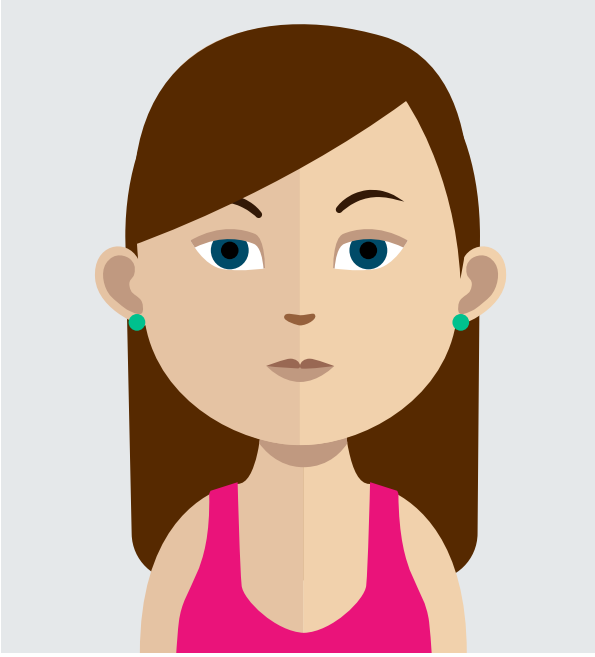
13% of low-wage workers

Low-wage workers in this cluster are between the ages of 18 and 24, do not have a postsecondary degree, and are not enrolled in school. It is the second-most racially and ethnically diverse of all the groups (49% non-white) and the most likely to be male (57%).

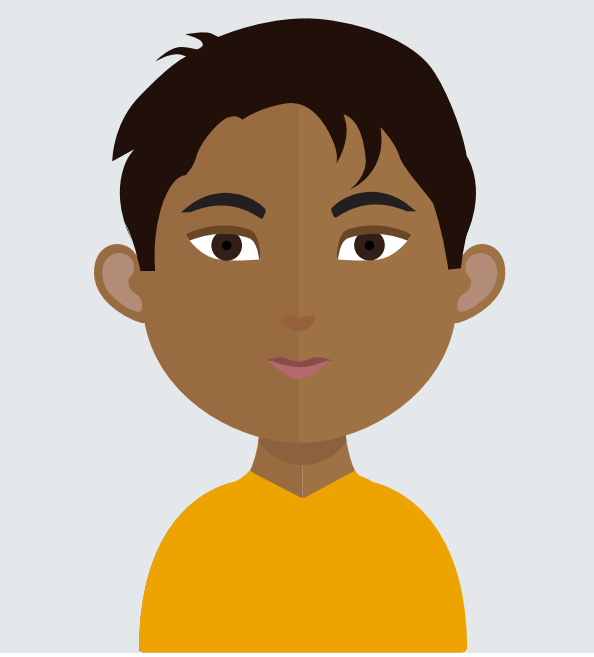
Compared to the two other clusters of 18- to 24-year-olds, individuals in this cluster are the most economically vulnerable. They are the least educated (54% have a high school diploma and 32% attended some college but have not completed a postsecondary degree), the most likely to have children (14%) or be single parents (10%), receive safety net assistance (31%), and be the sole earner for their family (20%).

Workers in this cluster are also primarily in occupations with limited room for earnings growth. This is especially true of those working as cooks and food preparation, other personal care and service, food and beverage serving, retail sales, and building cleaning and pest control workers—75% or more of workers in these occupations earn low wages, and the median wages in these occupations are low.[20]

Fictionalized examples of individuals in this group include:



Mary is a 23-year-old woman working as a retail sales clerk at a local boutique. She lives with her mother, and they share responsibility for covering living expenses. She has thought about going to school so she can get a better job, but isn't sure how she'd pay for it or what to study.



José is a 22-year-old Hispanic male. He enrolled in community college after graduating from high school but left after one semester. Since then, José has cycled through various low-wage jobs and recently started a new position as a warehouse worker. He lives with several roommates but has had trouble covering his share of the rent a few times while between jobs.

TABLE 5

Top 10 most common occupations, Cluster 1

Occupation group	Number of low-wage workers by cluster and occupation	Share of cluster	Share of workers in occupation that are low-wage
Retail sales workers	948,260	13.4%	76.4%
Material moving workers	512,730	7.2%	65.8%
Cooks and food preparation workers	504,610	7.1%	87.4%
Food and beverage serving workers	496,730	7.0%	79.6%
Information and records clerks	405,050	5.7%	60.5%
Construction trades workers	368,150	5.2%	46.7%
Material recording, scheduling, dispatching, and distributing workers	357,340	5.0%	56.5%
Building cleaning and pest control workers	240,600	3.4%	75.1%
Other production occupations	221,400	3.1%	52.5%
Other personal care and service workers	193,520	2.7%	81.0%

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Cluster 2: Ages 18-24, in school, no college degree

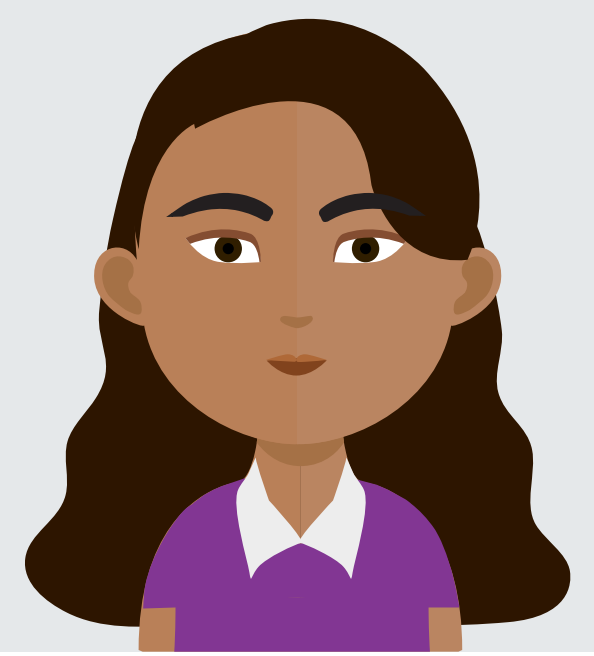
3.8 million people

7% of low-wage workers

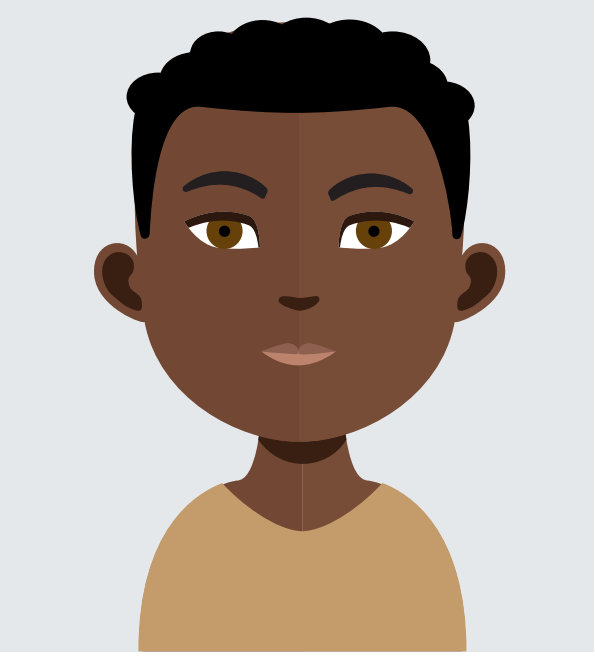
Individuals in this cluster are students between the ages of 18 and 24 without a postsecondary degree. The majority is female (56%) and white (58%). They are the least likely of all clusters to work full time year-round (20%), more than half (58%) live with their parents, and only 13% are the sole earner in their family—patterns that are not surprising among a young student population.

One out of five in this cluster work in retail, and a similar share work in an occupation related to food preparation or serving. Because the cluster is comprised of students, many are likely earning low wages temporarily and will shift into different and better-paying occupations as they complete their credentials. However, enrollment in college or a training program at a given point in time does not guarantee completion: More than 40% of degree-seeking students do not earn a degree within six years.[21] Given that those who leave college without a credential earn much less than those who do graduate, college non-completers may remain low-wage workers.[22] Thus, school enrollment is suggestive of higher earnings in the future, but not definitive.

Fictionalized examples of individuals in this group include:



Ari is a 24-year-old single mother. After completing high school, she began working in retail. For the last several years she has worked as an office assistant in a homebuilding company. She is taking a real estate course, and although she finds it difficult to balance school with work and caring for her children, she is planning to take the licensing exam.



Darryl is 21 years old and enrolled in the state university. He grew up in a middle-class family and continues to live with his parents while attending school to save money on rent. He works part time as a restaurant server to cover some of his school expenses, and expects to graduate at the end of the school year.

TABLE 6

Top 10 most common occupations, Cluster 2

Occupation group	Number of low-wage workers by cluster and occupation	Share of cluster	Share of workers in occupation that are low-wage
Retail sales workers	766,920	20.2%	76.4%
Food and beverage serving workers	414,930	10.9%	79.6%
Information and records clerks	291,380	7.7%	60.5%
Cooks and food preparation workers	238,250	6.3%	87.4%
Other personal care and service workers	164,010	4.3%	81.0%
Material moving workers	134,340	3.5%	65.8%
Material recording, scheduling, dispatching, and distributing workers	133,610	3.5%	56.5%
Other office and administrative support workers	108,930	2.9%	50.0%
Other food preparation and serving related workers	107,700	2.8%	87.8%
Nursing, psychiatric, and home health aides	93,510	2.5%	73.5%

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Cluster 3: Ages 18-24, with an associate degree or more

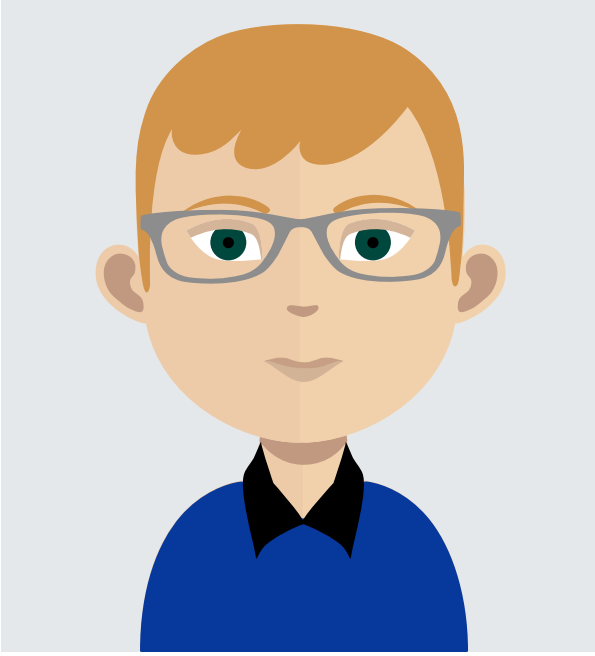
2 million people

4% of low-wage workers

Individuals in this cluster are between the ages of 18 and 24 and have completed a college degree. Excepting Cluster 2, this group is the least likely to work full time year-round (42%), and is the least likely to support their family with their wages alone (12%). Thirty-three percent are still enrolled in school and almost half (48%) live with their parents. Compared with the other two 18- to 24-year-olds clusters, this group is the most likely to be female (61%) and is the least racially or ethnically diverse (67% white).

The low-wage workers in this cluster work in a variety of occupations, including those common among all low-wage workers (such as retail, food and beverage serving, and cooks), but also some occupations where postsecondary credentials are generally required and most workers earn mid/high wages, such as teaching and health technicians. Considering the education and age of the low-wage workers in this cluster, it is likely that many of them will go on to earn higher wages as they gain experience.

A fictionalized example of individual in this group includes:



Robert is a 24-year-old with a bachelor's degree in business. Although he didn't land his dream job right after graduation, he has been working full time as a customer service representative. He's hoping to gain more experience and climb the corporate ladder.

TABLE 7

Top 10 most common occupations, Cluster 3

Occupation group	Number of low-wage workers by cluster and occupation	Share of cluster	Share of workers in occupation that are low-wage
Retail sales workers	212,400	10.5%	76.4%
Information and records clerks	142,770	7.0%	60.5%
Food and beverage serving workers	130,620	6.4%	79.6%
Preschool, primary, secondary, and special education school teachers	99,070	4.9%	27.4%
Other office and administrative support workers	71,160	3.5%	50.0%
Other personal care and service workers	69,970	3.4%	81.0%
Cooks and food preparation workers	62,020	3.1%	87.4%
Other management occupations	55,700	2.7%	20.8%
Health technologists and technicians	54,530	2.7%	35.0%
Material recording, scheduling, dispatching, and distributing workers	53,610	2.6%	56.5%

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Cluster 4: Ages 25-50, with a high school diploma or less

14.8 million people

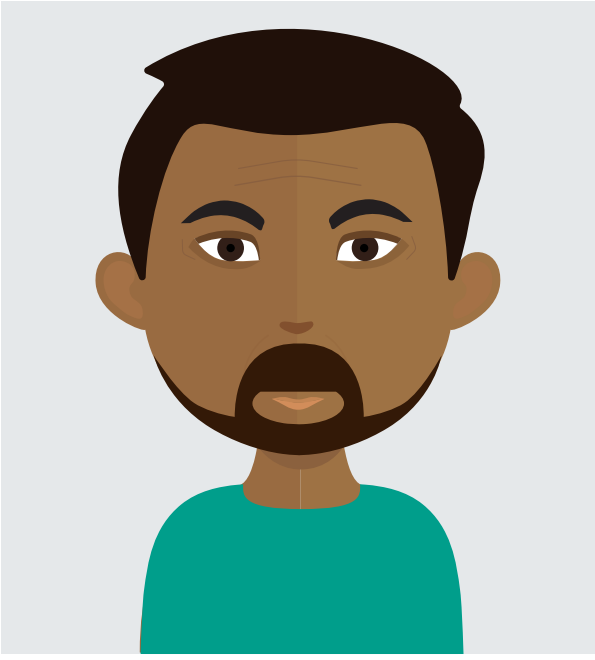
28% of low-wage workers

Members of the largest cluster are ages 25 to 50 with no more than a high school diploma (66% have a diploma or equivalent; the remaining did not graduate from high school). It is one of two clusters that are majority male (54%) and it is the most racially and ethnically diverse of all groups, with the lowest share of white workers (40%) and highest share of Latino or Hispanic workers (39%). This group is also the most likely to have limited English proficiency (28%) and to have been born outside of the United States (35%).

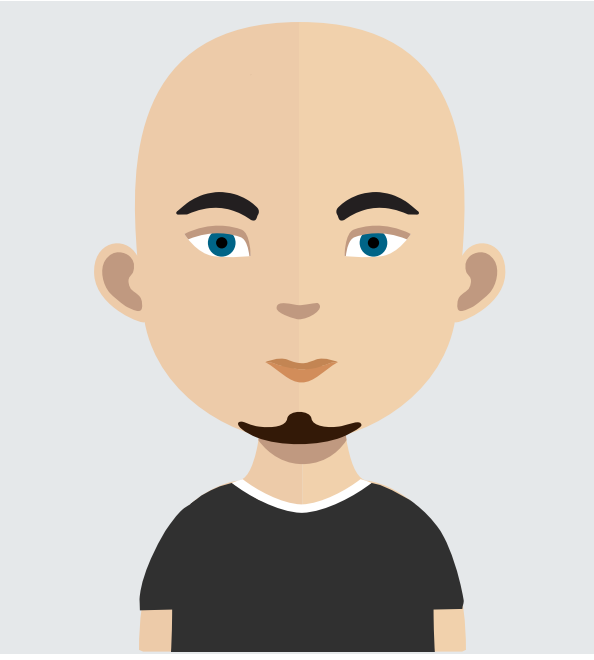
Many in this cluster also experience economic hardship, with many living below 150% of the federal poverty line (39%), receiving safety net assistance (35%), and relying solely on their wages to support their families (31%). This cluster surpasses all other groups on these measures. The economic precarity is especially concerning when considering this cluster is also the most likely to have children (44%).

Cluster 4 includes occupations where most workers earn low wages and with lower educational barriers to entry, including jobs that can be physically demanding or require people be on their feet, such as building cleaning, material moving, food service, and retail. However, it also includes a handful of occupations that employ relatively high shares of non-low-wage workers, such as construction trades workers, manufacturing workers (other production occupations), motor vehicle operators, and material recording and scheduling workers. These occupations also have higher median wages, suggesting possibilities for growth, and most of them (excepting material recording workers) are male-dominated occupations.[23,24]

Fictionalized examples of individuals in this group include:



Daniel is 45 years old. He and his wife moved to the United States from Mexico and have three children. He works for a construction firm and helps install sprinkler systems in commercial buildings, and his wife is a hotel housekeeper.



William is a 35-year-old short-order cook living alone. Because he was out of work for part of the year, his annual earnings are below the poverty line. After leaving high school without a diploma at age 16, he has mostly worked in the restaurant industry.

TABLE 8

Top 10 most common occupations, Cluster 4

Occupation group	Number of low-wage workers by cluster and occupation	Share of cluster	Share of workers in occupation that are low-wage
Construction trades workers	1,224,470	8.3%	46.7%
Building cleaning and pest control workers	1,065,600	7.2%	75.1%
Material moving workers	991,410	6.7%	65.8%
Cooks and food preparation workers	960,850	6.5%	87.4%
Retail sales workers	925,990	6.3%	76.4%
Motor vehicle operators	661,070	4.5%	50.1%
Other production occupations	612,120	4.1%	52.5%
Material recording, scheduling, dispatching, and distributing workers	559,140	3.8%	56.5%
Food and beverage serving workers	543,380	3.7%	79.6%
Information and records clerks	525,630	3.6%	60.5%

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Cluster 5: Ages 25-50, with some postsecondary education but no degree

7.7 million people

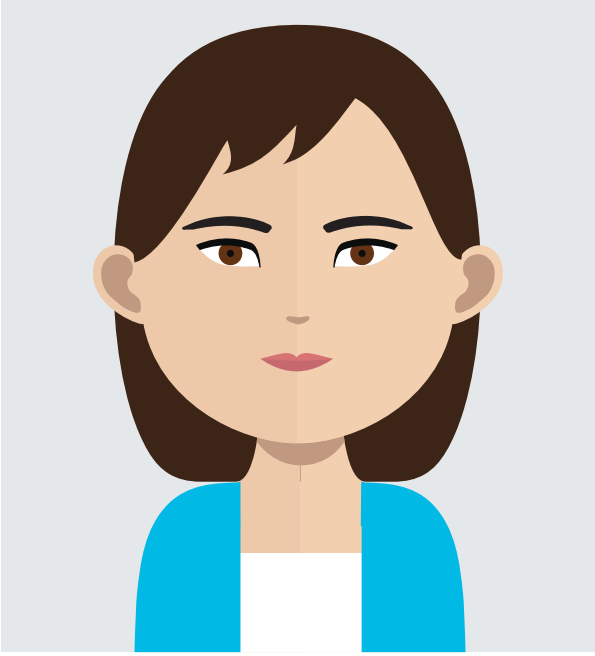
14% of low-wage workers

Individuals in this cluster are between the ages of 25 and 50 and have some education beyond high school, but do not have a college degree. Only 14% are still enrolled and working toward the completion of their credential. Although some may have completed a certificate or certification before leaving school, we cannot tell from the data, and other research suggests they probably did not.[25]

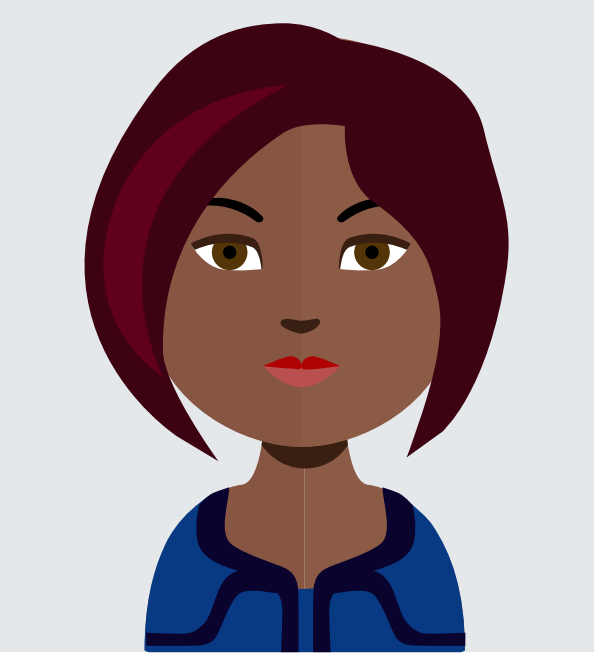
The group is disproportionately Black (20%) and the most likely to be single parents (18%) compared to low-wage workers overall. Among this cluster, the share that are the sole earners in their families (30%) is second only to those in Cluster 4.

Members of this group are the most likely to be nursing assistants/home health aides and supervisors of sales workers. They also have above-average representation in administrative positions—information and records clerks, material recording and scheduling workers, and other office and administrative support workers. The administrative positions and retail supervisor positions offer the greatest possibilities for wage growth, based on the lower shares of workers in those occupations who earn low wages and the higher overall median wages in the occupations.[26]

Fictionalized examples of individuals in this group include:



Christine is a 28-year-old immigrant from Vietnam. She completed certified nursing assistant (CNA) training a few years ago, and works as a nursing assistant in a long-term care facility. She has a son and relies on the free after-school program at his elementary school to ensure that he is taken care of while she is at work.



Michelle is 38 and works as a hotel front-desk clerk. She lives with her boyfriend, and when they combine their earnings they have a comfortable income. She attended college for a few years after high school and has worked in a variety of administrative and service occupations since her twenties.

TABLE 9

Top 10 most common occupations, Cluster 5

Occupation group	Number of low-wage workers by cluster and occupation	Share of cluster	Share of workers in occupation that are low-wage
Information and records clerks	548,010	7.1%	60.5%
Retail sales workers	538,940	7.0%	76.4%
Food and beverage serving workers	347,250	4.5%	79.6%
Nursing, psychiatric, and home health aides	305,120	4.0%	73.5%
Material recording, scheduling, dispatching, and distributing workers	290,740	3.8%	56.5%
Other personal care and service workers	276,990	3.6%	81.0%
Other office and administrative support workers	275,660	3.6%	50.0%
Cooks and food preparation workers	263,210	3.4%	87.4%
Material moving workers	259,320	3.4%	65.8%
Supervisors of sales workers	258,620	3.4%	39.6%

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Cluster 6: Ages 25-50, with an associate degree or more

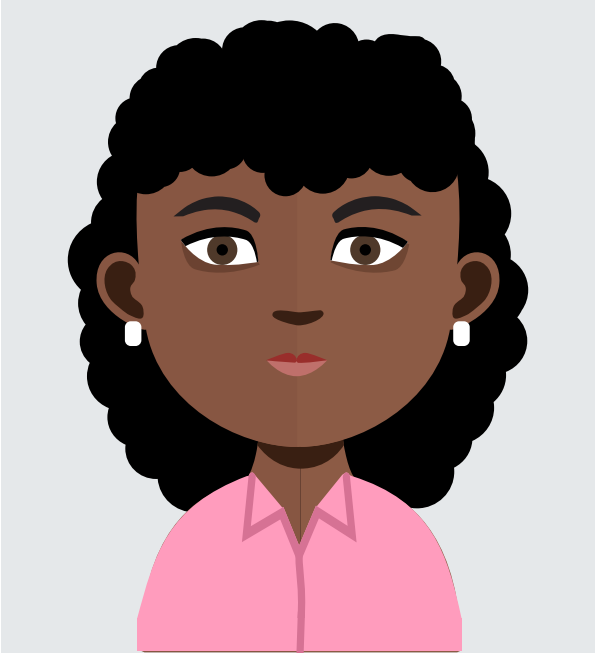
7.6 million people

14% of low-wage workers

Individuals in this cluster have an associate or bachelor's degree (36% and 64%, respectively) and are between the ages of 25 and 50. Compared to the other clusters of 25- to 50-year-olds, this group is the most likely to be female (62%), white (61%), and a secondary earner in their family (33%). It is also the least likely of those clusters to have children (39%), receive safety net assistance (17%), or live below 150% of the federal poverty line (21%).

Like the other clusters whose members have a college degree, they are more likely to work in education and administrative or management positions than other low-wage workers. And although these workers earn low wages, many are in occupations where most workers earn mid/high wages, such as those in management, health diagnosing, and teaching.[27] The most common occupational group in this cluster consists of preschool, primary, secondary, and special education teachers—workers not generally considered low-wage. Indeed, compared to the other occupations described in this paper, a relatively small share of teachers are low-wage workers (27%). The low wages of teachers in this cluster are likely driven by two factors: age and type of school. Low-wage teachers are likely to be younger with less experience, and are less likely to work in public schools, which generally offer higher wages than private schools.[28,29,30] Just over half (54%) of this cluster are between the ages of 25 and 34, still relatively early in their careers, and it's likely that many will earn higher wages as they gain experience.

A fictionalized example of individual in this group includes:



Julie is a 40-year-old preschool teacher with an associate degree in early childhood education. She is married with two preteen children, and her paycheck provides a nice supplement to her husband's income.

TABLE 10

Top 10 most common occupations, Cluster 6

Occupation group	Number of low-wage workers by cluster and occupation	Share of cluster	Share of workers in occupation that are low-wage
Preschool, primary, secondary, and special education school teachers	602,360	7.9%	27.4%
Information and records clerks	456,190	6.0%	60.5%
Retail sales workers	404,430	5.3%	76.4%
Other management occupations	324,390	4.3%	20.8%
Other office and administrative support workers	270,350	3.6%	50.0%
Secretaries and administrative assistants	263,220	3.5%	44.8%
Health diagnosing and treating practitioners	255,780	3.4%	9.4%
Food and beverage serving workers	237,550	3.1%	79.6%
Other personal care and service workers	235,530	3.1%	81.0%
Supervisors of sales workers	231,200	3.0%	39.6%

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Cluster 7: Ages 51-64, with a high school diploma or less

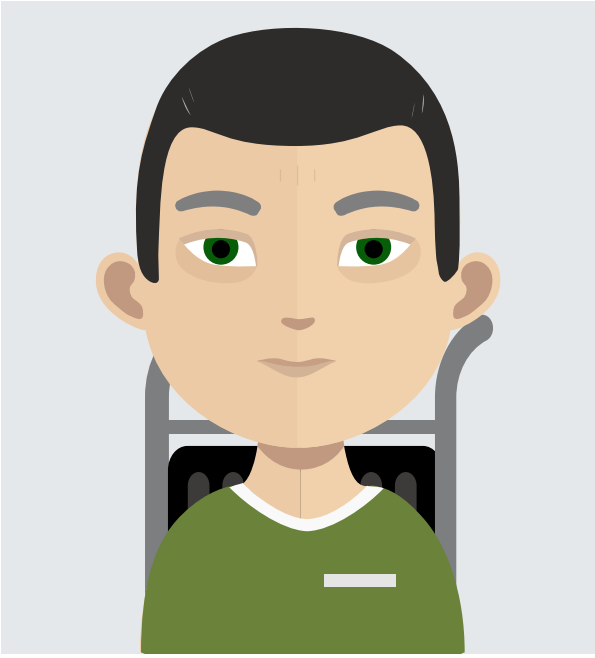
5.6 million people

10% of low-wage workers

The individuals in this cluster are between the ages of 51 and 64; nearly 70% graduated from high school, while the remainder do not have a diploma. This cluster is the most likely to have worked full time year-round (65%). Compared to the two other clusters of 51- to 64-year-olds, this cluster is the most racially and ethnically diverse (46% non-white, 24% have limited English proficiency, and 29% are foreign-born) and the most likely to be male (42%). There are indications that many in this group are economically vulnerable, with relatively high disability rates (12%) and the highest receipt of safety net benefits (22%) of the three 51-64 age clusters.

As with the similarly educated but younger Cluster 4, people in this cluster are more likely to work in construction, manufacturing, or to operate motor vehicles. This cluster also has the highest share of janitors and housekeepers (building cleaners), along with a mix of retail, hospitality, and administrative positions. Because these workers are older, it is unlikely they will see significant wage increases as they approach retirement.

Fictionalized examples of this group include:



Paul is a 53-year-old shipping and receiving clerk at an auto parts supplier. He has worked steadily since graduating from high school and started using a wheelchair several years ago due to rheumatoid arthritis. He is married with high-school-aged children. His wife also works, and between their two incomes they are able to get by—although they have not been able to save much for retirement or for college for their children.

Betty is a 56-year-old hospital housekeeper with a high school education. She has worked in a variety of positions in hotels and hospitals over the years, including cleaning, room setup and food service. She makes enough to support herself and lives alone.

TABLE 11

Top 10 most common occupations, Cluster 7

Occupation group	Number of low-wage workers by cluster and occupation	Share of cluster	Share of workers in occupation that are low-wage
Building cleaning and pest control workers	580,580	10.4%	75.1%
Retail sales workers	359,280	6.4%	76.4%
Motor vehicle operators	345,220	6.2%	50.1%
Material moving workers	298,400	5.3%	65.8%
Cooks and food preparation workers	282,380	5.1%	87.4%
Other personal care and service workers	243,570	4.4%	81.0%
Other production occupations	227,420	4.1%	52.5%
Construction trades workers	227,000	4.1%	46.7%
Information and records clerks	208,950	3.7%	60.5%
Material recording, scheduling, dispatching, and distributing workers	205,330	3.7%	56.5%

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Cluster 8: Ages 51-64, with some postsecondary education but no degree

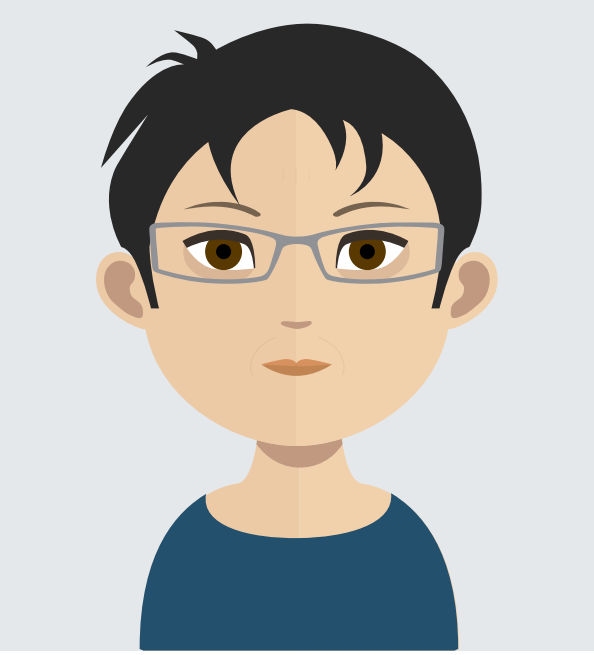
2.3 million people

4% of low-wage workers

Individuals in this cluster are ages 51-64, and while they have some educational experience beyond high school, they do not have a degree. This group is primarily female (65%), native-born (87%), white (66%), and English-speaking (92% speak English very well). This cluster is the most likely to include people who are veterans (9%), and like Cluster 7, it has a relatively high disability rate (12%). Compared to the other clusters, a relatively low share receives safety net benefits (17%) or have family incomes below 150% of the federal poverty line (18%).

This group is the most likely to work in administrative positions, which account for five of the 10 most common occupations. Several other positions are also over-represented: motor vehicle operators, nursing aides, and other personal care and service workers, including child care workers and personal care aides.

Fictionalized examples of individuals in this group include:



Helen is 51 years old. She was a stay-at-home mom, but when her children moved out of the house, she went back to school to earn her Child Development Associate Credential and now works in a day care center. Even though she and her husband don't need the extra money, she enjoys working with young kids and getting back in the workforce.

Lorenzo is a 61-year-old delivery truck driver. He is divorced with grown children and lives alone. After graduating high school, he went to work as a machine maintenance worker at a manufacturing plant. He held that job until a few years ago when the plant shut down. His on-the-job training, though substantial, has been difficult to translate to another, equally well-paying position.

TABLE 12

Top 10 most common occupations, Cluster 8

Occupation group	Number of low-wage workers by cluster and occupation	Share of cluster	Share of workers in occupation that are low-wage
Retail sales workers	170,170	7.5%	76.4%
Information and records clerks	152,950	6.7%	60.5%
Motor vehicle operators	123,370	5.4%	50.1%
Secretaries and administrative assistants	121,780	5.3%	44.8%
Building cleaning and pest control workers	107,730	4.7%	75.1%
Other personal care and service workers	101,710	4.5%	81.0%
Other office and administrative support workers	96,340	4.2%	50.0%
Financial clerks	84,380	3.7%	46.6%
Material recording, scheduling, dispatching, and distributing workers	82,300	3.6%	56.5%
Nursing, psychiatric, and home health aides	79,420	3.5%	73.5%

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Cluster 9: Ages 51-64, with an associate degree or more

2.4 million people

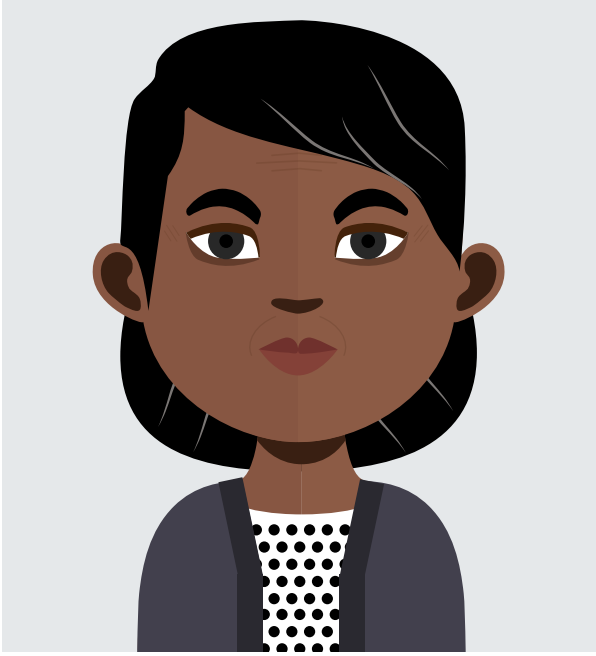
5% of low-wage workers

Individuals in this cluster have an associate or bachelor's degree (36% and 64%, respectively) and are between the ages of 51 and 64.

Compared to the other clusters, this group is the least racially and ethnically diverse (69% white), although there is also a relatively high concentration of Asian American workers (8%). This group is the least likely to live below 150% of the federal poverty line (16%) or receive safety net assistance (13%). Of clusters composed of people age 25 and over, they are the least likely to work full time/year-round (57%).

Cluster 9 is the most likely group to be working in education. As with the similarly educated Cluster 6, the most common occupation is teaching—and again, teachers in this cluster are less likely to work in public schools, which offer higher wages than private schools (56% of teachers in the cluster work in public schools, compared to 67% of all teachers).[31] Unlike Cluster 6, workers in this cluster are nearing the end of their careers and are unlikely to see additional wage gains with experience. Other top occupations are administrative: information and records clerks, secretaries, financial clerks, and other administrative support positions.

A fictionalized example of individual in this group includes:



Donna is a 54-year-old administrative assistant. She has a bachelor's degree and works part time at a nonprofit organization she used to volunteer for. Married with children who are in college, she has been in and out of the labor force over the years as she was raising her kids, so she and her husband have relied primarily on his salary to support themselves.

TABLE 13

Top 10 most common occupations, Cluster 9

Occupation group	Number of low-wage workers by cluster and occupation	Share of cluster	Share of workers in occupation that are low-wage
Preschool, primary, secondary, and special education school teachers	196,780	8.2%	27.4%
Retail sales workers	170,730	7.1%	76.4%
Information and records clerks	142,910	5.9%	60.5%
Secretaries and administrative assistants	109,360	4.6%	44.8%
Other personal care and service workers	95,290	4.0%	81.0%
Other management occupations	93,660	3.9%	20.8%
Other office and administrative support workers	87,580	3.6%	50.0%
Other education, training, and library occupations	78,930	3.3%	72.9%
Motor vehicle operators	78,380	3.3%	50.1%
Financial clerks	66,160	2.8%	46.6%

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Low-wage workers as a share of all workers varies considerably by metropolitan area

Not surprisingly, the largest metropolitan areas have the highest numbers of low-wage workers: 3.5 million in the New York City area, 2.7 million in the Los Angeles region, 1.6 million in Chicago, and about 1.2 million each in Dallas, Miami, and Houston. In smaller metros, such as Pine Bluff, Ark., Walla Walla, Wash., and Ithaca, N.Y., there are fewer than 15,000 low-wage workers.

Looking at the number of low-wage workers relative to the total workforce, however, tells us more about where the concentration of low-wage workers is particularly high or low. While low-wage workers account for 44% of all workers nationally, that figure varies substantially by place. Across more than 300 metropolitan areas, the share of workers earning low wages ranges from 30% to 62%. Even though they have fewer numbers of low-wage workers than the largest metros, low-wage workers make up a high share of the workforce in smaller places in the southern and western parts of the United States, including Las Cruces, N.M. and Jacksonville, N.C. (both 62%), Visalia, Calif. (58%), Yuma, Ariz. (57%), and McAllen, Texas (56%).[32] In places with high shares of low-wage workers, those workers are more likely to be Latino or Hispanic, caring for children, and have lower levels of education.

On the other end of the distribution, many of the places with the lowest concentration of low-wage workers are located in the Mid-Atlantic, Northeast, and Midwest. Low-wage workers in these metro areas—such as California, Md. (30%), Rochester, Minn. (31%), Bismarck, N.D. (32%), and Hartford, Conn. (32%)—are predominantly white and more likely to have a high school diploma or some postsecondary education than low-wage workers in general.[33] *(Please see the data appendix available for download for more information on the number of low-wage workers and their share of all workers by place.)*

The variation in the concentration of low-wage workers across metropolitan areas relates to broader labor market conditions, including labor market tightness and industry composition.

Metro areas with employment rates significantly above the national average of 70% have lower shares of low-wage workers (41%) than metro areas with lagging employment rates (48%). This inverse relationship between the employment rate and the share of low-wage workers in a given place reflects well-established evidence that higher employment rates result in increased wages for workers.[34]

The share of workers earning low wages is also linked to industry concentration, which we measure using location quotients.[35] The industrial composition of a given place affects its occupational mix. Industries such as health care, professional services, or finance directly generate high-wage occupations typically held by people with at least a bachelor's degree (e.g., doctors, architects, and financial analysts).[36] Regions with specialties in these high-wage industries have below-average shares of low-wage workers. High-wage jobs also have indirect economic impacts affecting local job growth and wages by increasing demand for retail, food service, and entertainment. One influential analysis highlighted high-tech jobs in particular as generating the strongest wage benefits for all workers.[37] On the other hand, areas that

TABLE 14

The 20 metros with the highest and lowest shares of workers earning low wages

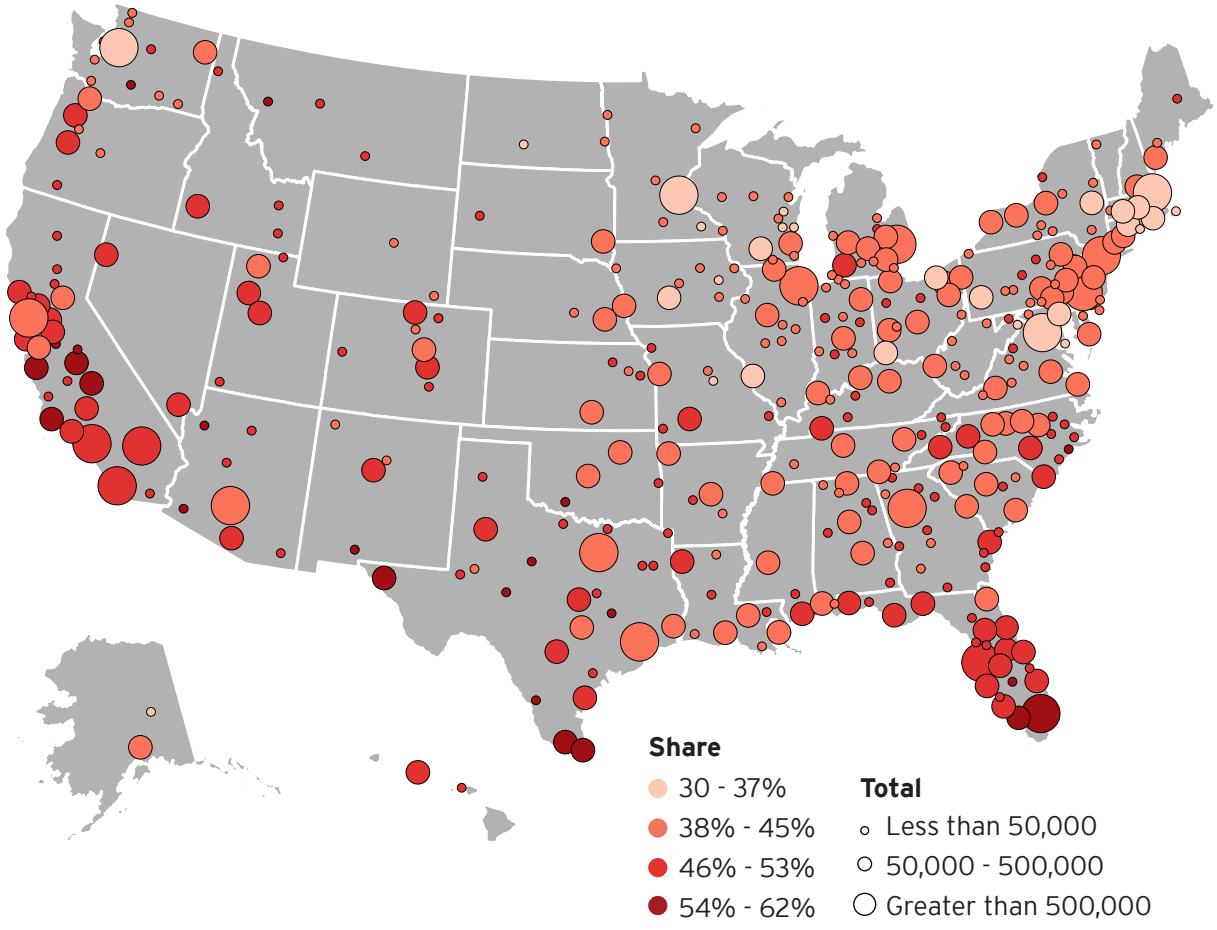
Metro name	Number of low-wage workers	Share of workers who are low-wage
California-Lexington Park, MD	24,790	29.7%
Rochester, MN	20,140	30.8%
Bismarck, ND	17,200	31.8%
Hartford-West Hartford-East Hartford, CT	159,730	32.0%
Cedar Rapids, IA	32,510	33.8%
Fond du Lac, WI	22,970	33.9%
Jefferson City, MO	20,140	34.6%
Boston-Cambridge-Newton, MA-NH	702,380	34.9%
Minneapolis-St. Paul-Bloomington, MN-WI	548,550	35.3%
Albany-Schenectady-Troy, NY	125,340	35.4%
Des Moines-West Des Moines, IA	102,370	35.5%
Winchester, VA-WV	17,830	35.5%
Appleton, WI	29,150	35.6%
Sheboygan, WI	17,630	35.7%
Cincinnati, OH-KY-IN	309,110	35.8%
Barnstable Town, MA	30,010	35.9%
Seattle-Tacoma-Bellevue, WA	560,980	36.2%
Baltimore-Columbia-Towson, MD	410,210	36.4%
Worcester, MA-CT	139,620	36.4%
St. Louis, MO-IL	423,890	36.8%
....		
Missoula, MT	39,260	54.5%
Yakima, WA	49,540	54.8%
Miami-Fort Lauderdale-West Palm Beach, FL	1,206,470	54.8%
San Angelo, TX	23,050	54.8%
El Paso, TX	156,650	54.8%
Lake Havasu City-Kingman, AZ	33,800	54.9%
Madera, CA	25,860	54.9%
Naples-Immokalee-Marco Island, FL	58,710	55.2%
Lawton, OK	20,120	55.5%
Merced, CA	49,440	55.5%
Abilene, TX	27,110	55.7%
Brownsville-Harlingen, TX	71,080	55.8%
Salinas, CA	98,230	56.1%
McAllen-Edinburg-Mission, TX	139,060	56.2%
Sebring, FL	24,280	56.2%
Laredo, TX	48,030	56.5%
Yuma, AZ	39,110	57.3%
Visalia-Porterville, CA	90,260	58.3%
Jacksonville, NC	24,490	61.6%
Las Cruces, NM	46,700	61.9%

Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

MAP 1

The number and share of workers who are low-wage varies by metro

373 metro areas



Source: Brookings analysis of 5-year, 2012-2016 American Community Survey microdata

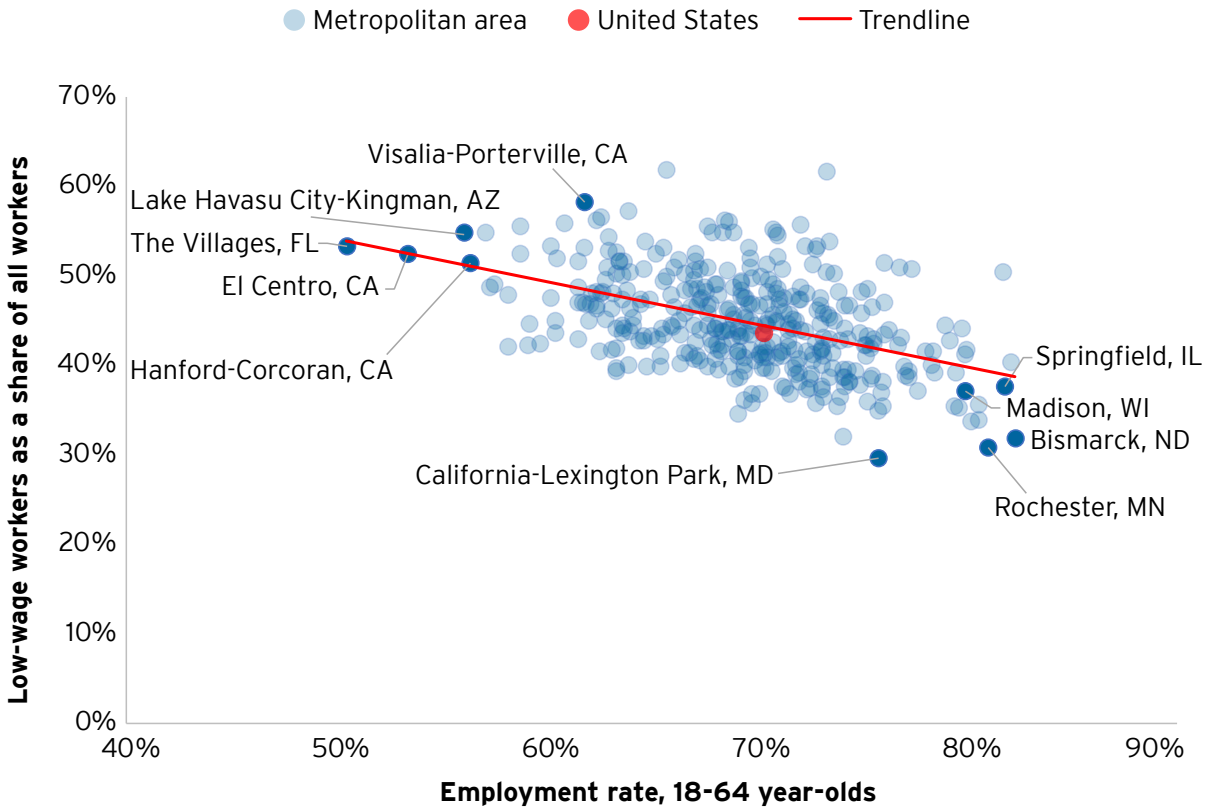
concentrate in sectors with low median wages such as agriculture, real estate, and hospitality have higher shares of low-wage workers.[38]

The spatial dimensions of prosperity and economic growth are by now well-documented, with some regions showing robust growth in employment, wages, and productivity, while others lag farther and farther behind.[39] Economist Enrico Moretti provides a pithy description: "A handful of cities with the 'right' industries and a solid base of human capital keep attracting good employers and offering high wages, while those at the other extreme, cities with the 'wrong' industries and a limited human capital base, are stuck with dead-end jobs and low average wages."[40]

Education is a perennial recommendation to help low-wage workers get better-paying jobs, and indeed, there is much to do to improve education and workforce development. But these data highlight the interrelated challenges of helping people *and* places. Well-paying jobs requiring higher levels of education are unlikely to locate or grow in places absent people with the skills to fill them, and such populations do not appear overnight. In the near term, education does

FIGURE 3

Metros with higher employment rates have lower shares of low-wage workers



Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

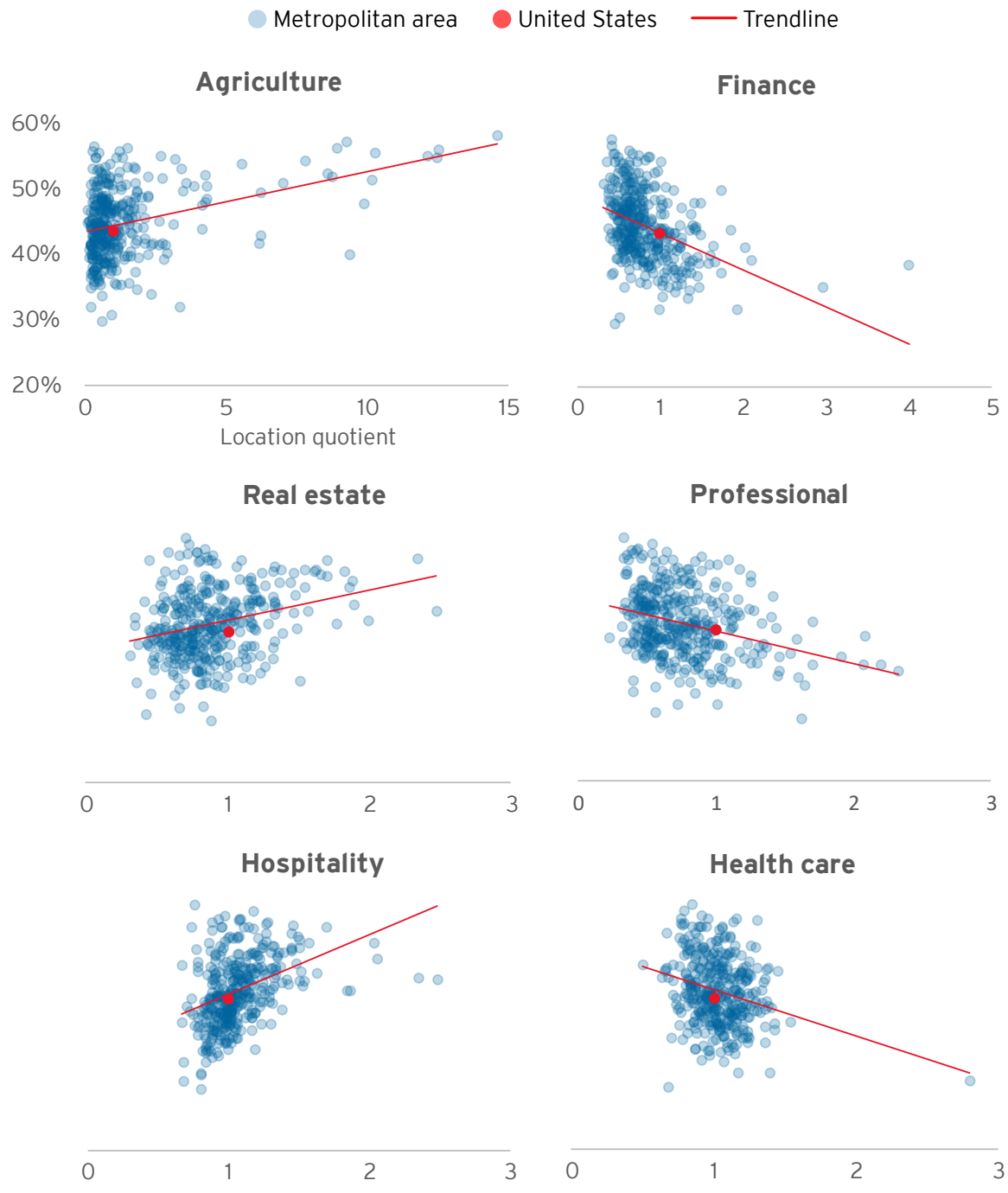
not equal job creation. Completing a degree or training program will not help someone get a better job if there are few such jobs to be had.

Meanwhile, stronger-market regions pose different problems for low-wage workers. In job-rich, prosperous regions, the wage bump that comes with a tighter labor market is usually insufficient to cover skyrocketing rents and housing prices. Ganong and Shoag note, for example, that although a janitor in New York City earns nearly 30% more in nominal pay than a janitor in Southern states such as Alabama and Mississippi, he or she earns 7% less once wages are adjusted for housing costs.[41] Workers without college degrees find it difficult to afford housing in expensive cities such as Boston and San Francisco, and they are more likely than college-educated workers to choose to live in lower-cost places with fewer amenities.[42] Thus, the fact that fewer low-wage workers live in a place does not necessarily indicate a more inclusive economy, but rather that the occupational mix and housing prices favor those with college degrees and higher earnings. It may also reflect that low-wage workers are priced out of living in the region in which they work, and make long commutes from more affordable places.[43] And for low-wage workers who remain in these high-cost areas, they may be limited to neighborhoods characterized by high levels of poverty, unemployment, and crime.

FIGURE 4

Industry concentration by region is linked to the share of workers earning low wages

373 metropolitan areas



Source: Brookings analysis of 2012-2016 American Community Survey 5-year Public Use Microdata Samples

Applying data from this analysis to two places highlighted by Moretti demonstrates the scale of the regional divergence. The San Francisco region is an economic powerhouse, centered on the high-wage industries of information, professional services, and corporate headquarters activity. It has an employment rate of 74%, and 49% of its residents have a bachelor's degree—both of which are above national averages. A relatively low 38% of all workers in the region earn low wages.

About 200 miles away in the Central Valley, the Visalia region has a much less robust economy, concentrated in agriculture and wholesale trade, with an employment rate of 62% and bachelor's attainment rate of only 14%. Fifty-eight percent of its workers earn low wages, a full 20 percentage points higher than in San Francisco.

Discussion and recommendations

The data presented here show the complexity of the labor market and the pervasiveness of low-wage jobs. Low-wage work can be an entry point into the working world for young people as well as a chance to carry out useful and productive activities, particularly for those who have a choice in whether to work and what type of work to do. Troublingly, however, low-wage work also serves as a source of economic hardship for millions of workers and their families.

While there is no single measurement of economic hardship, a few data points from this analysis highlight the extent to which low-wage work translates directly into financial vulnerability.

- *Measured by poverty status:* 30% of low-wage workers live in families earning below 150% of the poverty line. These 16 million low-wage workers get by on very low incomes—about $30,000 for a family of three and $36,000 for a family of four. These individuals are disproportionately found in **Cluster 1** (ages 18-24, not in school, no college degree), **Cluster 2** (18-24, in school, no college degree), **Cluster 4** (25-50, high school diploma or less), and **Cluster 5** (25-50, some education beyond high school but no degree).

- *Measured by educational attainment:* Nearly 40% of low-wage workers are adults ages 25-64 with a high school diploma or less, and another 13% are young adults who appear to be off track: They are not in school and do not have a college degree. Given the importance of education in the labor market, this group of 27 million faces limited prospects for earnings growth. These individuals are in **Cluster 1** (ages 18-24, not in school, no college degree), **Cluster 4** (25-50, high school diploma or less), and **Cluster 7** (51-64, high school diploma or less).

- *Measured by the presence or absence of other earners:* 26% of low-wage workers (14 million) are the only earners in their families, and another 25% (13 million) live in families in which all workers earn low wages. These 27 million low-wage workers rely on their earnings to provide for themselves and their families, as they are either the family's primary earner or a substantial contributor to total earnings. Their earnings are unlikely to represent "nice-to-have" supplemental income. These individuals are disproportionately in **Cluster 1** (18-24, not in school, no college degree), **Cluster 4** (25-50, high school diploma or less), and **Cluster 5** (25-50, some education beyond high school but no degree).

Research on whether low-wage jobs are springboards or sinkholes is not encouraging. The economic mobility of low-wage workers is limited—many remain in low-wage jobs over time, even as they rely on their earnings to support themselves or their families. Women, people of color, and those with low levels of education are the most likely to stay in low-wage jobs.[44] One study found that, within a 12-month period, 70% of low-wage workers stayed in the same job, 6% switched to a different low-wage job, and just 5% found a better job.[45] Other research found that younger workers are more likely to move out

of low-wage jobs than older workers (with older referring to age 35 or 40), and that the likelihood of moving out of a low-wage job diminishes the longer one holds a low-wage job.[46] Lastly, as shown by our colleagues Marcela Escobari, Ian Seyal, and Michael Meaney workers in the lowest wage quintile are the most likely to switch jobs without receiving a pay increase.[47]

It would be comforting if most low-wage workers were teenagers, people working for personal fulfillment or extra spending money, or in a low-wage job as a temporary way station. But that is not the case. Depending on your preferred definition of economic hardship, between one-third to more than one-half of all low-wage workers—representing 16 to 27 million people—are in trouble.

Recommendations

Policies and programs to support low-wage workers advance to higher wages and greater financial stability should address both sides of the labor market: the assets and circumstances of workers as well as the number and nature of available jobs.

Our recommendations fall into three broad categories, described below. We focus our recommendations on issues raised by the paper: the sheer size of the low-wage workforce and its role in the broader economy, as well as the geography and demographics of low-wage workers.

We do not attempt to cover the entire landscape of ideas and proposals related to the low-wage labor market. Many people and organizations are doing important work on this front—for example, focusing on employers' business models and operational choices, developing policy options on paid leave and stable schedules, and protecting workers' rights.[48] These are all critical issues, but they were not the focus of our analysis.

Improve worker skills

Low-wage workers are a diverse group, but their age and education are useful starting points for local officials to understand the population, assess whether the workforce and education programs available in a given place are sufficient and a good fit, and provide a foundation for program design.

Education is a primary sorter of labor market opportunities, as this report and multiple others have shown. Similarly, the age of a worker or student is one of their most salient characteristics. People have different roles and responsibilities at different stages in their life, as well as different activities and preferences. Age also plays a prominent role in how programs are designed, delivered, and funded.

We know a great deal about how to improve the skills of workers and job seekers, perhaps more than we think we do. There is a considerable body of evidence and practical knowledge on establishing and operating workforce programs that prepare workers—primarily those without college degrees—for in-demand jobs. That is not to say it is easy, however, or adequately funded, or that the knowledge is always implemented.

Robust subsets of the workforce development and educational communities focus specifically on young adults. They primarily target young people who have gotten "off track" in some way, such as not finishing high school, not being enrolled in postsecondary education, not having a job, or being in other difficult life circumstances. These young people are the least likely to age out of low-wage jobs as they gain experience. For them, low wages in their early career serve as a "stratification table-setter" and foreshadow continued low wages.[49]

Workforce and education strategies for this group include the following:

- Employment programs offering a mix of supportive services, work experience, education and training, stipends or wages, and a focus on mentoring or building other supportive relationships with adults.[50]

- Reengagement centers conducting outreach to young people who do not have a high school diploma or did not have successful education and job experiences after graduating from high school. They assess the circumstances of the young people they see and refer them to a best-fit educational program.[51] Of course, the success of a reengagement center also depends on the availability and quality of educational options in a given area. These include a wide variety of alternative high schools, credit recovery efforts, and GED programs. Programs increasingly recognize that a high school diploma or GED should not be the end goal, but rather strive to prepare and connect students to postsecondary education.[52]

There are also a number of workforce and education strategies that don't specify a target age, but in practice serve mostly prime-age workers:

- Sector initiatives identifying employers' skill and workforce needs in a given industry or region and developing recruiting, assessment, and training strategies to help employers find workers with the right skills.[53]
- Apprenticeships combining paid employment with on-the-job training and related classroom instruction.[54]
- Bridge programs preparing people with low academic skills for further education and training, sometimes in combination with occupational skills training.[55]
- Two-generation programs linking education, job training, and career building for low-income parents with early childhood education for their children, thus building human capital across generations.[56]
- Customized training for employers, particularly small to midsized businesses that may lack the scale or resources to design and run their own training programs.[57]
- Collegiate reforms changing how schools organize and offer courses and increasing support services such as tutoring and advising to improve retention and graduation rates for students seeking associate and bachelor's degrees.[58]

Most of the above initiatives are backed by formal evaluations or other performance measurements. They are implemented in various forms around the country, although nowhere near the scale required. The challenge is to diffuse and scale what works, which will require additional funds, political will to reallocate funding toward evidence-backed programs, and a commitment to organizational change on the part of education and training organizations. A related policy question is determining the balance of financial support from the public and private sectors.

There is less attention to and knowledge about helping older low-wage workers, such as in our clusters of those aged 51-64. Different companies and industries show varying levels of interest and ability in managing an older workforce, although the topic is gaining increased attention as the population ages, and there are a number of best practices and case studies.[59] While employment and education programs are available to older workers, they appear to be relatively modest in size and are not always tailored to workers ages 50 and up. Also, it can be difficult for workers to find reliable information about education and job placement services.[60] Recent initiatives targeting older workers have highlighted the value of tailored advising and career services for this age group, whether through one-on-one counseling, group workshops, or computer classes.[61]

Discussions of education and training for older low-wage workers overlap with broader issues regarding Social Security, Medicare, and the role of social insurance. The average age to file for Social Security retirement benefits is 62,[62] and there is a robust discussion about how to support all workers, not only low-income ones, in working longer and maintaining financial security in retirement.[63] Low-wage workers are particularly likely to face economic vulnerability in retirement—they may lack access to workplace retirement plans, their earnings and work history may lead to modest Social Security benefits,

and they simply may not be able save money, instead spending it on basic living expenses.[64] Older workers with lower levels of education may be less physically able to work than other older people, since they disproportionately work in physically demanding jobs and experience more health problems than those with more education.[65] Retirement may not be affordable, and when it does happen, it may be involuntary, due to layoffs or health problems.[66]

In this case, there is a policy debate about how to support the economic stability of older low-wage workers: promote employment, provide social insurance, or some combination of the two. For older workers who are ill-prepared to support themselves and their families in the labor market—whether because of discrimination, health problems, or changing skill demands—it can be difficult to retire with dignity.

Address discrimination and bias in the labor market

People of color and women are both overrepresented among low-wage workers. Echoing well-established trends, we found that much higher shares of Black and Latino or Hispanic workers are low-wage compared to white workers.[67] Sixty-three percent of Latino or Hispanic workers and 54% of Black workers earn low wages, compared to 36% of white workers and 40% of Asian American workers. Black and Latino or Hispanic workers earn less than white workers with equivalent educational levels and experience, so these factors—education and experience—do not account for the racial differences in wages.[68] An analysis of racial discrimination in hiring since 1990 found the "magnitude and consistency of discrimination" to be a "sobering counterpoint" to more optimistic assessments about the declining significance of race.[69] Racial discrimination also manifests itself in the assignments workers are given and the ways their performance is judged and rewarded, which in turn affects career progression.[70]

Similarly, our findings reflect other research on the gender wage gap: 54% of low-wage workers are women, despite women comprising only 48% of all workers. Recent data shows full-time, year-round working women earn about 80 cents for every dollar earned by men working full time, year-round.[71]

Some of the wage gap can be explained by differences in work patterns and experience between men and women. Women often pursue education in lower-paying fields and majors than men, ultimately landing in lower-paying occupations.[72] However, study after study has confirmed that differences in work patterns, experience, hours, and occupations do not explain the entirety of the wage gap, and there is strong evidence of discrimination against women.[73]

Lastly, age discrimination is pervasive and makes it harder for older workers to retain their jobs or find new ones.[74] Unemployed older workers take longer to find new jobs than younger workers, and are more likely to take a pay cut when they do—a job switch may cause an older worker to become a low-wage worker.[75] Older workers with lower levels of education may face particular difficulty in retaining their jobs or finding new ones. They are less likely to be in white-collar positions, and "rank-and-file" older workers are viewed as less productive by employers.[76]

Education and training on their own are insufficient to address discrimination. There is too much evidence showing that even with equivalent education and experience, workers of color earn less than white workers, and women earn less than men. We need stronger enforcement of anti-discrimination laws regarding the hiring, promotion, and pay of people of color, women, and older adults through the federal Equal Employment Opportunity Commission.[77] States and localities can also enact and enforce workplace protection laws addressing discrimination.[78]

Discrimination is not always overt or even intentional, and public policy is not the only venue for change. Employers can review their HR policies to determine if their practices inhibit their ability to attract, retain, or promote

particular groups of people. Of course, employers won't do this or find it meaningful unless they think that a more diverse workforce will positively impact their organization's performance.[79] The research base suggests that diversity in terms of gender, race/ethnicity, age, and other qualities does have positive effects, although the findings are not unanimous in that regard. Several studies found that more diverse teams of employees tend to make better decisions, and depending on the type of diversity, may generate higher revenues.[80] Other studies have found diversity to be associated with outcomes such as higher sales, profits, revenue, and market share, as well as a spur for innovation.[81]

As noted above, front-line and low-wage workers are disproportionately people of color and female, and companies may determine that this incumbent workforce represents a ready talent pool for higher-level positions, with the right investments in skills and training. The Hitachi Foundation and the National Fund for Workforce Solutions have documented examples of such employer investments and practices in lower-wage workers.[82] Similarly, the Restaurant Opportunities Center Uniteds developed a guidebook to help restaurants address bias in hiring and promotion.[83]

Promote good jobs through economic and workforce development

As this analysis has shown, low-wage workers do not occupy a niche role in the labor market. They account for 44% of all workers, and in some metro areas, up to two-thirds of all workers.

The success of any job seeker depends not only upon her skills and abilities, but also the number and types of available jobs. Which industries undergird a state or regional economy? What kinds of jobs do they generate, what do those jobs pay, and to whom are they available? What educational credentials and experience do employers seek in their workers?

Our colleagues Chad Shearer and Isha Shah identified good jobs for workers without bachelor's degrees, defining "good jobs" as those paying median earnings or more for a given metropolitan area and providing health insurance. They found that such jobs are relatively scarce, held by only 20% of workers without bachelor's degrees in large metro areas, with another 13% in "promising" jobs, in which incumbent workers are likely to obtain a good job within 10 years. Good jobs are highly concentrated in a few types of occupations such as maintenance, construction, production, and transportation, and are also relatively more plentiful in some places than others. Shearer and Shah estimated that 35% of workers without bachelor's degrees hold good or promising jobs in the Spokane, Wash. region, compared to 25% in Louisville, Ky. and 9% of workers in the Washington, D.C. metro area.[84]

A similar analysis by Kyle Fee, Keith Wardrip, and Lisa Nelson reinforced Shearer and Shah's findings. They defined good jobs for workers without a bachelor's degree as those paying at least the national median wage adjusted for local cost of living, and found that there are 3.4 working-age adults with less than a bachelor's degree for every good job.[85] Again, there was substantial variation by geography. For example, there were 5.6 adults without bachelor's degrees for every good job in the Miami region, and 2.5 in Indianapolis.

These numbers suggest that there simply are not enough jobs paying decent wages for people without college degrees (who make up the majority of the labor force) to escape low-wage work.[86] And education, on its own, cannot solve this problem. Imagine that all working-age adults had bachelor's degrees. The jobs paying low wages would not disappear. Nor would their wages automatically increase.

A multitude of recent papers, speeches, and initiatives have highlighted structural problems in the labor market, and noted that too many workers will continue to be left behind absent dramatic policy change.[87] Dani Rodrik and Charles Sabel formulate the issue in perhaps the starkest terms: "'Where will the good jobs come from?' is perhaps the defining question of our contemporary political economy."[88]

Much of the current discourse on economic growth and development focuses on helping left-behind places, as it has become increasingly clear that economic disparities between regions are increasing rather than diminishing.[89] While this analysis does not track change over time, it does reflect that low-wage employment plays an outsize role in the economies of many regions, mostly smaller ones, and not typically economic powerhouses.

It does not take away from this argument, however, to note that there are also left-behind people in the largest, most productive, and high-wage regions. Witness the 3.5 million low-wage workers in the New York City region; 950,000 in the Washington, D.C. region; 713,000 in San Francisco; and 560,000 in Seattle.

Old assumptions—regional economic fortunes will eventually converge, most of the workers in low-wage jobs are teenagers, secondary earners, or will move on to higher-paying jobs—do not apply.

In this environment, proposals for new investments and policies to promote economic growth and shared prosperity are gaining traction. They all require new capacity, commitment, and patience on the part of leaders in the public, private, and social sectors. They also require us to rethink some of the fundamentals of economic and workforce development.

Rodrik and Sabel conclude that standard regulatory and policy responses are inadequate. The high levels of uncertainty about ends and means (How do you define a good job? How do you create more of them?) make it difficult to set predetermined goals in advance and measure progress accordingly. Similarly, a top-down federal mandate applied uniformly across the country hinders the ability of local actors to tailor policies and programs to problems that are idiosyncratic by place, firm, and industry.

Rodrik and Sabel call for a strategy that allows for uncertainty and iteration between public and private actors, with three mutually reenforcing components:

- Improving the competitiveness of firms and the productivity of their workers by extension services or cooperative programs
- Increasing the number of good jobs by supporting startups, helping existing local firms, and attracting outside investment
- Strengthening opportunities for workers to master the required skills for good jobs via active labor market policies or workforce development

The strategy's reach would be magnified by a federal commitment to support states and regions in carrying it out, but it is also possible for coalitions of state and regional leaders to adopt this on their own.

Colleagues at the Brookings Metropolitan Policy Program have asserted that state and local officials should remake economic development, starting with basic issues of goals and strategy. Amy Liu proposes that the goal of economic development should be to support growth that is shared and enduring, increases the productivity of firms and workers, and raises standards of living for all.[90] Joseph Parilla identifies three key issues that regional economic development actors can help address:

- Dynamism barriers that inhibit the process of firm creation and expansion that fuels employment and productivity growth
- Skills barriers that inhibit individuals from gaining the knowledge and capabilities to fill good-paying jobs
- Access barriers that isolate individuals in particular communities from economic opportunity

Parilla acknowledges the magnitude of the changes in practice he is suggesting, given the current norms and incentives in economic development. However, he also proposes a variety of ideas of how economic development actors can promote more inclusive growth, and draws on current examples from the field.[91]

Lastly, Steven L. Dawson and Maureen Conway propose a reorientation of the workforce development field, also starting with goals and strategy. They call for workforce development to adapt interventions that not only encourage career mobility, but also help ensure basic economic stability—in their words, to build ladders to assist career development and raise the floor to make poor-quality jobs better. Since workforce development has historically emphasized career ladders more than job quality, the shift involves new policy goals such as minimum wage levels, safe working conditions, and benefits. It also requires different relationships with employers and new business expertise. It is easy to say that lower-paid workers are assets to be leveraged rather than costs to be minimized; it is much harder and more complicated to review businesses' processes and redesign their lower-wage jobs to increase the efficiency and productivity of both workers and the business overall.[92] Moreover, if organizations support public policies opposed by business groups, partnerships with employers will be difficult. The field will have to manage the tension between advocacy and running programs.

The three proposals highlighted here are mostly in early stages of development, with some being constructed in real time. While the authors of these proposals approach the labor market from different vantage points, they all link worker wages and skills to broader economic trends and the productivity of workers, firms, industry sectors, and places.

Final thoughts

Labor market conditions are not acts of God or inevitable. They are shaped by policies, investments, institutions, and norms. Nor are citizens, workers, government, and businesses helpless against impersonal market forces. They have agency. Policies, investments, institutions, and norms can be changed—although, admittedly, it is rarely easy or quick to do so.

Local and regional leaders in multiple sectors can use the data in this analysis to better understand their labor markets. Are particular clusters or personas overrepresented or underrepresented? Leaders can develop strategies accordingly, whether they focus on skill building, efforts to promote more equitable hiring practices, or new approaches to promoting economic growth. The data themselves cannot dictate particular actions, since every locale and region has its own history, leadership, and institutional capacity. But it can shine a light on a segment of the workforce that is often overlooked, and we hope that it inspires people to aim higher and act bigger to improve their communities.

Endnotes

1. Anthony P. Carnevale, Tamara Jayasundera, and Artem Gulish, "America's Divided Recovery: College Haves and Have Nots" (Washington: Georgetown University Center on Education and the Workforce, 2016).

2. The category of production and nonsupervisory employees, which excludes managers and accounts for the majority of workers, is often a proxy for "typical workers." Hourly wages for this group rose from $21.82 in January 2017 to $23.46 in July 2019, an increase of about 7%. Federal Reserve Bank of St. Louis, "Average Hourly Earnings of Production and Nonsupervisory Employees: Total Private," available at https://fred.stlouisfed.org/graph/?id=AHETPI,. When adjusted for inflation using the Bureau of Labor Statistics' CPI Inflation Calculator, however, the increase falls to 1.7%.

3. See, for example, David Cooper, Lawrence Mishel, and Ben Zipperer, "Bold Increases in the Minimum Wage Should be Evaluated for the Benefits of Raising Low-Wage Workers' Total Earnings" (Washington: EPI, 2018); Jacquelyn Anderson and others, "A New Approach to Low-Wage Workers and Employers: Launching the Work Advancement and Support Center Demonstration" (New York: MDRC, 2006); Emsi and Careerbuilder, "The Pulse of U.S. Hiring Activity: Labor Market Churn by Occupation & Metro" (Moscow, Idaho: Emsi, 2014).

4. For example, 36.7% of high school and college students aged 16-24 participated in the labor market in 2018, compared to 79.1% of 16- to 24-year-olds not enrolled in school, according to Bureau of Labor Statistics, "College Enrollment and Work Activity of Recent High School and College Graduates – 2018," available at https://www.bls.gov/news.release/pdf/hsgec.pdf (April 2019). Within the student population, non-traditional students, defined as independent and adult-like students, work on average 10.5 hours a week more than traditional dependent students, as shown in Laura W. Perna, ed., *Understanding the Working College Student: New Research and its Implications for Policy and Practice* (Sterling, Va.: Stylus Publishing, 2012).

5. We exclude those earning less than $0.94 per hour or more than $187.38 per hour, following the methodology of Economic Policy Institute's The State of Working America (http://www.stateofworkingamerica.org/).

6. The ACS does not include an hourly wages variable. Instead, we calculate hourly wages by dividing annual earnings from wages or salary by the product of usual hours worked per week and weeks worked over the previous year. The ACS weeks worked over the previous year variable is categorical, with each value representing a range of weeks worked. We use the midpoint of the intervals to complete this calculation. Please refer to the technical appendix available for download for more details.

7. See Heather Boushey and others, "Understanding Low-Wage Work in the United States" (Washington: Center for Economic and Policy Research, 2007); Jennifer E. Swanberg, Elizabeth Watson, and Meridith Eastman, "Scheduling Challenges among Workers in Low-Wage Hourly Jobs: Similarities and Differences among Workers in Standard- and Nonstandard-Hour Jobs," *Community, Work & Family* 17 (4) 2014: 409–435.

8. The Bureau of Economic Analysis describes Regional Price Parities as follows: "Regional Price Parities are price indexes that measure geographic price level differences for one period in time within the United States... An RPP is a weighted average of the price level of goods and services for the average consumer in one geographic region compared to all other regions in the U.S." Please refer to the RPP homepage of the Bureau of Economic Analysis at https://www.bea.gov/data/prices-inflation/regional-price-parities-state-and-metro-area for more information. We use RPPs to adjust the national

thresholds for metropolitan areas. The thresholds for areas outside of metros are determined by state and adjusted using the state's non-metropolitan RPP. Refer to the technical appendix for additional information.

9. All dollar values reported in this paper are in 2016 real dollars, adjusted using the ACS-provided income and wages adjustment variable, unless otherwise stated.

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14. Sum and others, "The Plummeting Labor Market Fortunes of Teens and Young Adults." See also Endnote 4.

15. For example, workers in the lowest wage quintile have a much greater probability of moving into or out of employment in a given three-month period (21.9%) than workers in the highest wage quintile (4.9%). See Cooper, Mishel, and Zipperer, "Bold Increases in the Minimum Wage Should be Evaluated for the Benefits of Raising Low-Wage Workers' Total Earnings."

16. In our analysis of low-wage workers by the presence or absence of other earners in the family, we identified four groups: sole earners, those in families in which all other workers earn low wages, those in families in which at least one other worker earns mid/high wages, and those in non-family households. We described the first three groups in the body of the paper. Those in "non-family households" account for 20% of the low-wage population. The term "non-family household" refers to a variety of living situations, including people who live alone as well as those sharing a residence with people to whom they are not related, such as roommates. It also includes unmarried couples living together. We estimate about 40% of people in this category live alone. Median individual earnings for this group are $19,200, and median household earnings are $28,500. In the case of household earnings, we do not know the extent to which people in the household pool their resources.

17. We use 3-digit 2010 Standard Occupational Classification (SOC) codes for our occupation analysis and call these 3-digit occupations "occupation groups."

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19. See, for example, William Carrington and Bruce Fallcik, "Do Some Workers have Minimum Wage Careers?" *Monthly Labor Review* 5 (21) (2001): 17-28; La Donna Pavetti and Gregory Acs,

"Moving Up, Moving Out, or Going Nowhere? A Study of the Employment Patterns of Young Women and the Implications for Welfare Mothers" (Washington: Urban Institute, 1997); Heather Boushey, "No Way Out: How Prime Age Workers Get Trapped in Minimum Wage Jobs," *Journal of Labor and Society* 8 (6) (2005): 659-670; Brett Theodos and Robert Bednarzik, "Earnings Mobility and Low-Wage Workers in the United States" (Washington: Monthly Labor Review, 2006); Harry Holzer, "Encouraging Job Advancement Among Low-Wage Workers: A New Approach" (Washington: Brookings, 2004); Pamela Loprest, Gregory Acs, Caroline Ratcliffe, and Katie Vinopal, "Who are Low-Wage Workers?" (Washington: ASPE, 2009); Gabe, Abel, and Florida, "Can Low-Wage Workers Find Better Jobs?"; Fredrik Andersson, Harry J. Holzer, and Julia I. Lane, *Moving up or Moving on: Who Advances in the Low-Wage Labor Market?* (New York: Russell Sage Foundation, 2005); Anthony P. Carnevale and Stephen J. Rose, "Low-Earners: Who are They? Do They Have a Way Out?" In Richard Kazis and Mark Miller, eds., *Low-Wage Workers in the New Economy* (Washington: Urban Institute, 2001).

20. Median wages by occupation are as follows: cooks and food preparation workers ($9.32), other personal care and service ($10.14), food and beverage serving ($10.14), retail sales ($10.18), and building cleaning and pest control workers ($11.20), based on our analysis of 2012-2016 American Community Survey 5-year Public Use Microdata.

21. Fifty-seven percent of all degree-seeking students who started in the fall of 2011 graduated within six years, per Doug Shapiro and others, "Completing College: A State-Level View of Student Completion Rates," available at http://www.nscresearchcenter.org/signature-report-14-state-supplement-completing-college-a-state-level-view-of-student-completion-rates/ (2018).

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23. Median wages by occupation are as follows: construction trades workers ($16.71), motor vehicle operators ($15.68), other production occupations ($14.91), and material recording, scheduling, dispatching, and distributing workers ($14.49). The construction trades occupation group is composed of a fairly diverse set of more detailed occupations, and the bulk of low-wage construction workers in this cluster are either laborers, carpenters, or painters. Based on our analysis of 2012-2016 American Community Survey 5-year Public Use Microdata.

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25. Stephanie Ewert and Robert Kominski, "Measuring Alternative Educational Credentials: 2012" (Washington: U.S. Census Bureau, 2014).

26. Median wages by occupation are as follows: information and records clerks ($14.03), material recording, scheduling, dispatching, and distributing workers ($14.49), other office and administrative support workers ($15.90), and supervisors of sales workers ($18.32). Based on our analysis of 2012-2016 American Community Survey 5-year Public Use Microdata.

27. The health diagnosing and treating practitioners in this cluster are primarily early-career physicians and nurses, whose earnings will go up over time, and whose low hourly wages are likely also related to a high number of hours worked per week (especially for physicians). Other health diagnosing occupations in this cluster include dieticians and music therapists.

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30. Within this cluster, 50% of teachers work in public schools and 28% of teachers work in private schools. The remaining 21% are in "nonprofit" schools, but it is difficult from the data to tell what kind of schools these may be, so we do not conduct additional analyses on teachers in nonprofit schools.

31. Fifty-six percent of teachers in this cluster are in public schools, 21% work in private schools, and 23% are in the somewhat ambiguous "nonprofit" school category.

32. The share of low-wage workers in these metros are significantly higher than the national share ($p < .01$). Significance results are available for all metros in the Data Appendix, Table DA2.

33. The share of low-wage workers in these metros are significantly lower than the national share ($p < .01$). Significance results are available for all metros in the Data Appendix, Table DA2.

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35. Specifically, we create a ratio of the share of workers in a given industry by metro area to the share of people working in that industry nationally. LQs greater than one indicate that the metro area has an above-average concentration of employees in that industry. For more discussion, see Rob Sentz, "Understanding Location Quotient," available at https://www.economicmodeling.com/2011/10/14/understanding-location-quotient-2/ (October 2011).

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37. Enrico Moretti, *The New Geography of Jobs* (New York: Houghton Mifflin Harcourt, 2012).

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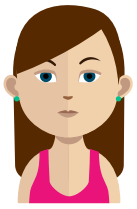
B

Appendix: Profiles of low-wage workers

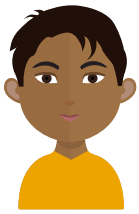
Cluster 1: Ages 18-24, not in school, no college degree

Individuals in this group are between the ages of 18 and 24, do not have a college degree, and are not enrolled in school. They are a racially and ethnically diverse group and the most likely of all clusters to be male. Compared to the other two clusters of 18- to 24-year-olds, this group is the most likely to have children or be a single parent, receive safety net assistance, and be the sole earner in their family. They are commonly in occupations with little room for earnings growth.

Fictionalized examples of this group include:

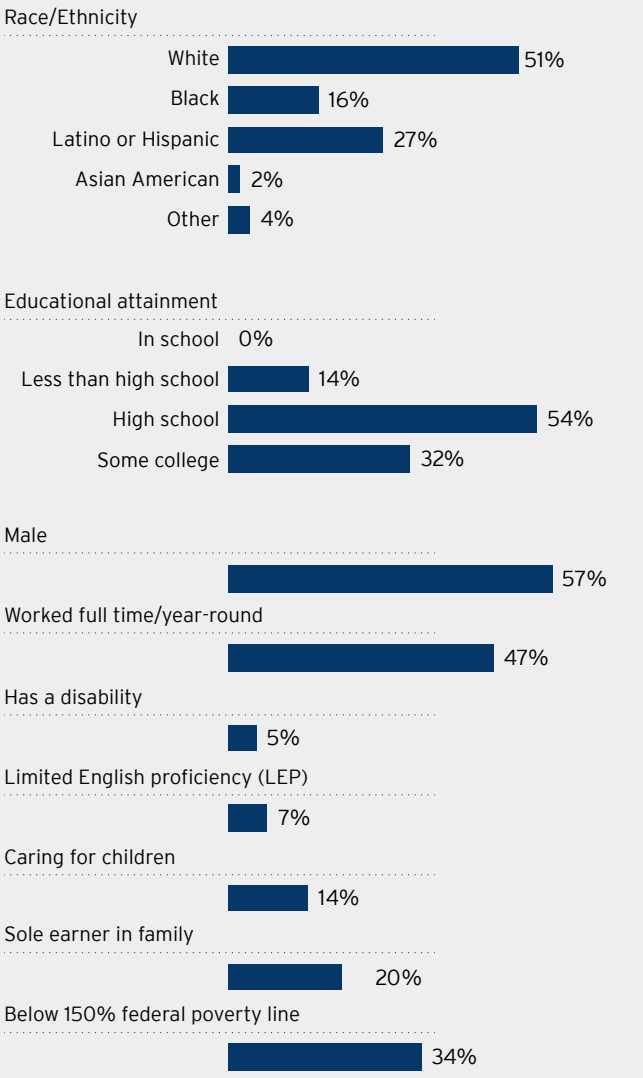


Mary (age 23) is a retail sales clerk. She lives at home and shares living expenses with her mother. Mary is considering going back to school, but isn't sure how she'd pay for it.



José (age 22) is a warehouse worker. He enrolled in community college but left after one semester and has since cycled through a series of low-wage jobs. He lives with several roommates.

7.1 million people
13% of low-wage workers

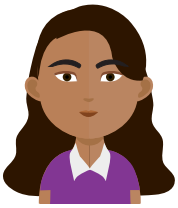


Source: Brookings analysis of American Community Survey 5-year Public Use Microdata Samples

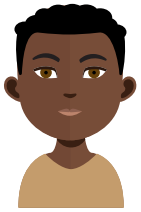
Cluster 2: Ages 18-24, in school, no college degree

Individuals in this cluster are students between the ages of 18 and 24 without a postsecondary degree. Only one in five work full time year-round, a majority live with their parents, and only 13% are the sole earner in their family—patterns that are not surprising among a young student population. Because the cluster is comprised of students, many are likely earning low wages temporarily and will shift into different and better-paying occupations as they complete their credentials. However, enrollment in school does not ensure completion of a degree, and higher future earnings are not guaranteed.

Fictionalized examples of this group include:

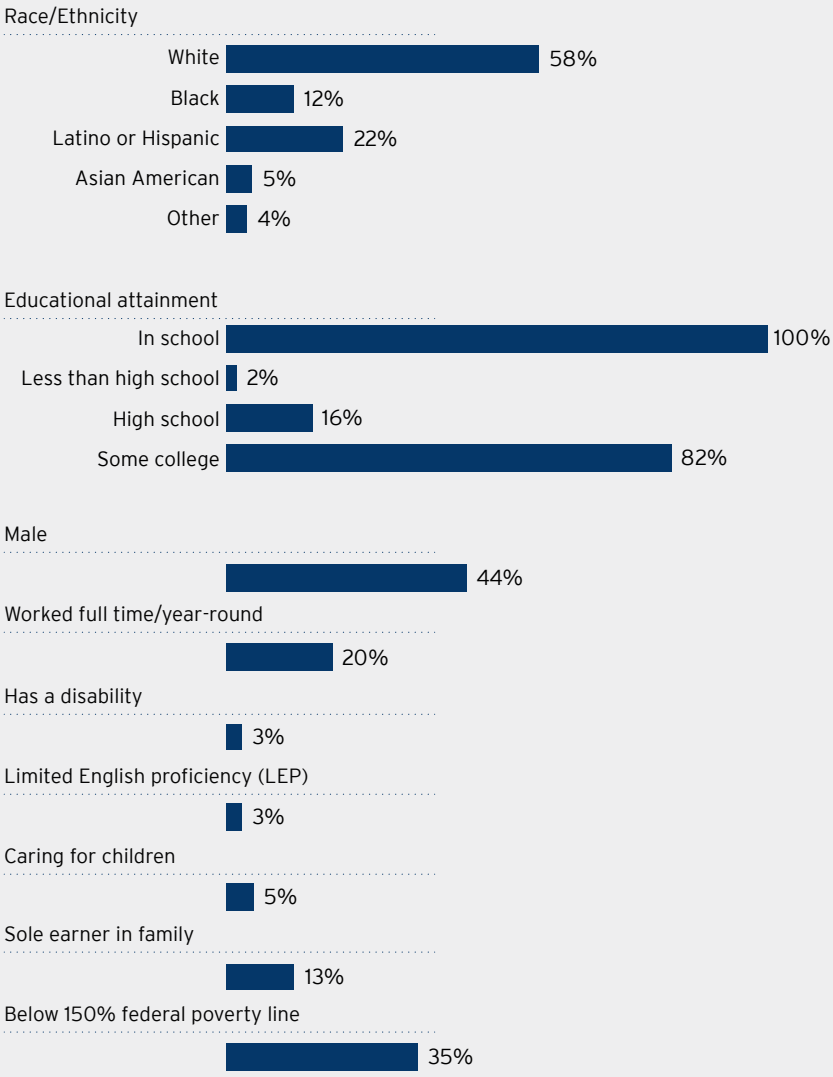


Ari (age 24) is an office assistant and single mother. She graduated high school and is currently completing a real estate course, although she finds it difficult to balance school with work and caring for her children.



Darryl (age 21) is enrolled in the state university and works part time as a restaurant server. He lives with his parents to save money on rent.

3.8 million people
7% of low-wage workers



Source: Brookings analysis of American Community Survey 5-year Public Use Microdata Samples

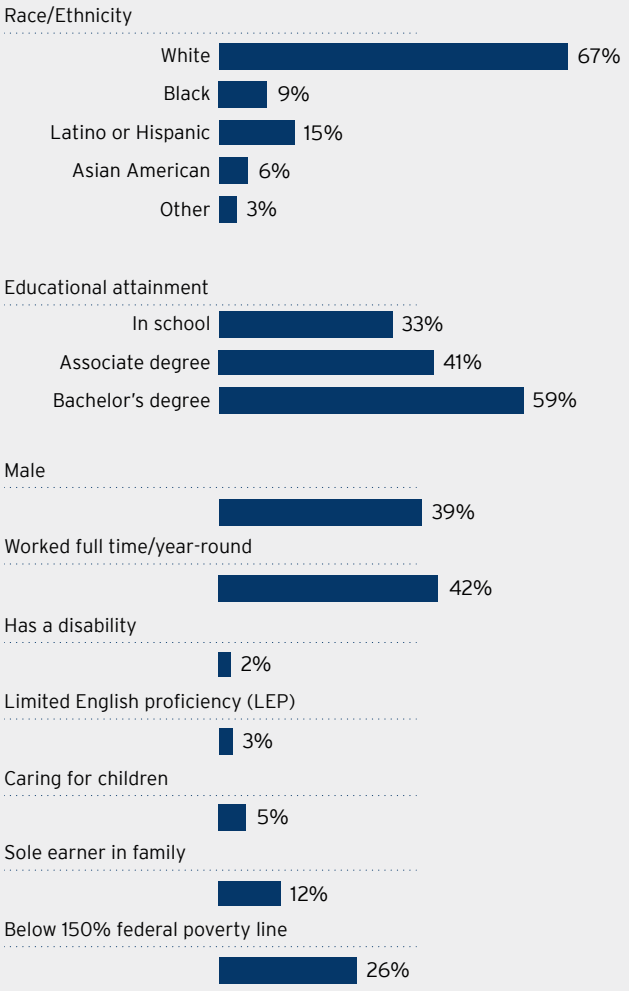
Cluster 3: Ages 18-24, with an associate degree or more

Individuals in this cluster are between the ages of 18 and 24 and have completed a college degree. Less than half work full time year-round and very few are the sole source of income for their family. One in three are still attending school and almost half live with their parents. Compared with the other two 18- to 24-year-old clusters, this group is most likely to be female and are the least racially or ethnically diverse. Considering the education and age of the low-wage workers in this cluster, it is likely that many of them will go on to earn higher wages as they gain experience.

A fictionalized example of this group include:

Robert (age 24) works full time as a customer service representative. He has a bachelor's degree in business and is hoping to climb the corporate ladder as he gains work experience.

2 million people
4% of low-wage workers

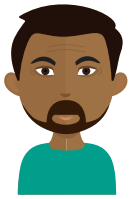


Source: Brookings analysis of American Community Survey 5-year Public Use Microdata Samples

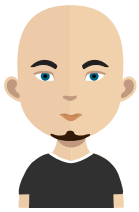
Cluster 4: Ages 25-50, with a high school diploma or less

Members of the largest cluster are ages 25 to 50 with no more than a high school diploma. It is one of two clusters that are majority male and it is the most racially and ethnically diverse of all groups. This group is also the most likely to have limited English proficiency and to have been born outside of the United States. These workers are commonly in occupations where most earn low wages and there are lower educational barriers to entry.

Fictionalized examples of this group include:

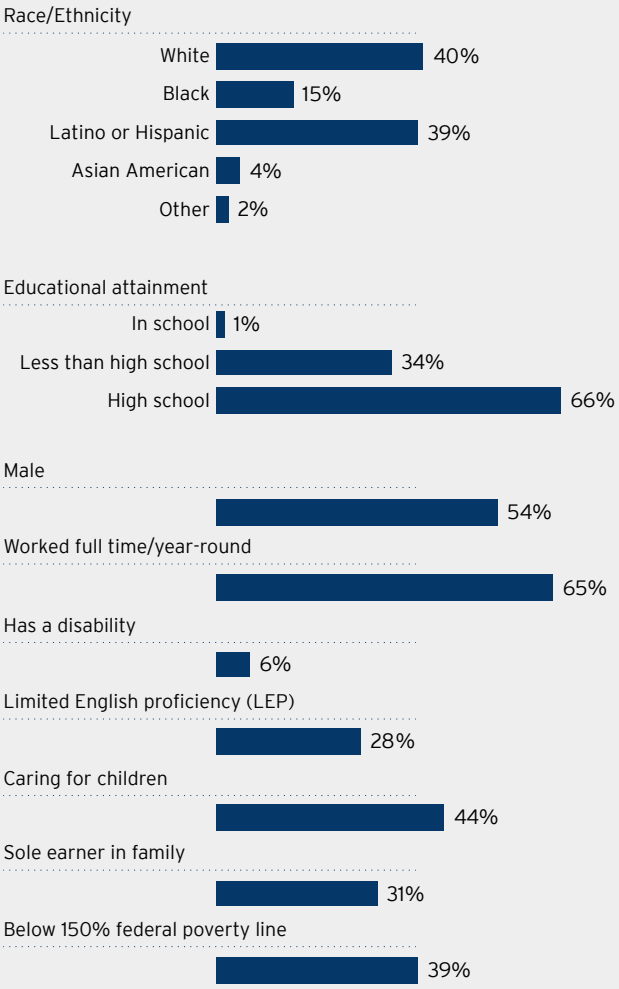


Daniel (age 45) works for a construction firm as a sprinkler installer. He moved to the United States from Mexico with his wife, who works as a hotel housekeeper. They have three children.



William (age 35) is a short-order cook living alone. He left high school before earning a diploma. Because he was out of work for part of the year, his annual earnings are below the poverty line.

14.8 million people
28% of low-wage workers

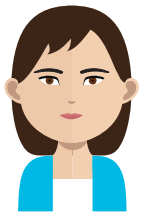


Source: Brookings analysis of American Community Survey 5-year Public Use Microdata Samples

Cluster 5: Ages 25-50, with some postsecondary education but no degree

Individuals in this cluster are between the ages of 25 and 50 and pursued education beyond high school, but do not have a college degree. Only 14% are still working toward the completion of their credential. This cluster is disproportionately Black, the most likely to be single parents, and nearly one in three are the sole earners in their family.

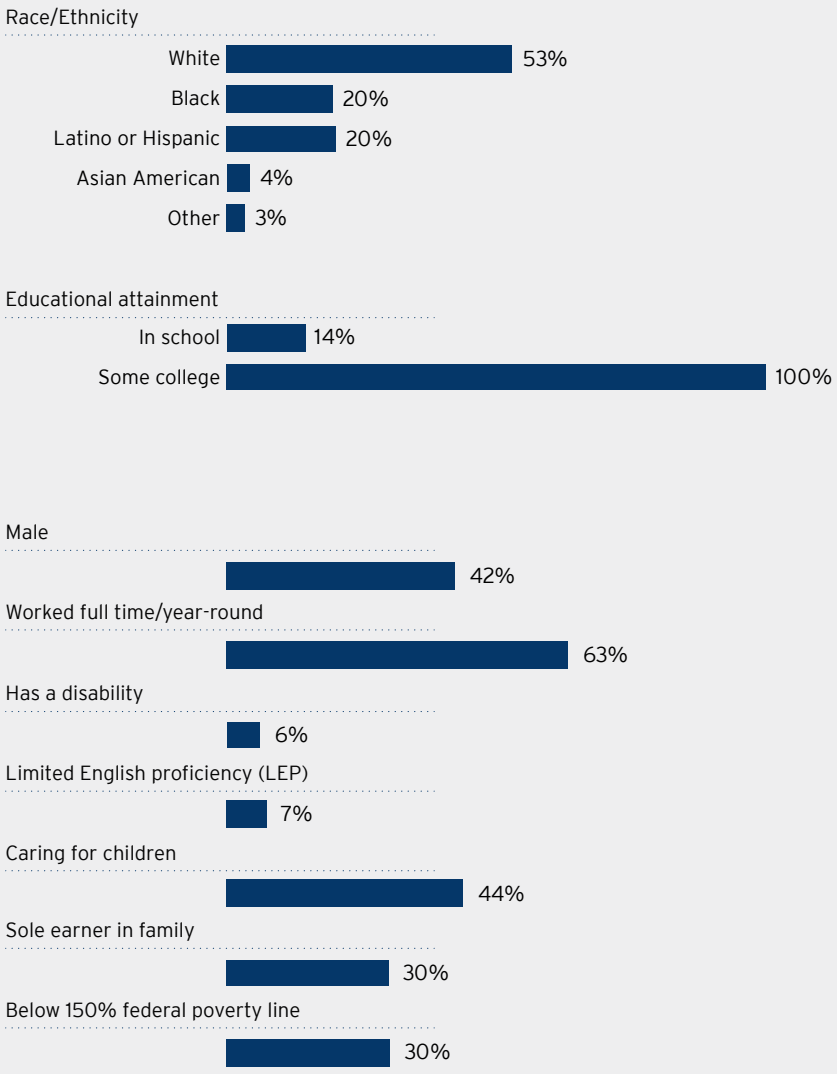
Fictionalized examples of this group include:



Christine (age 28) is a certified nursing assistant. She is an immigrant from Vietnam and lives with her young son.

Michelle (age 38) works as a hotel front-desk clerk. She shares expenses with her live-in boyfriend. She attended college for a few years after high school, but didn't complete a degree.

7.7 million people
14% of low-wage workers



Source: Brookings analysis of American Community Survey 5-year Public Use Microdata Samples

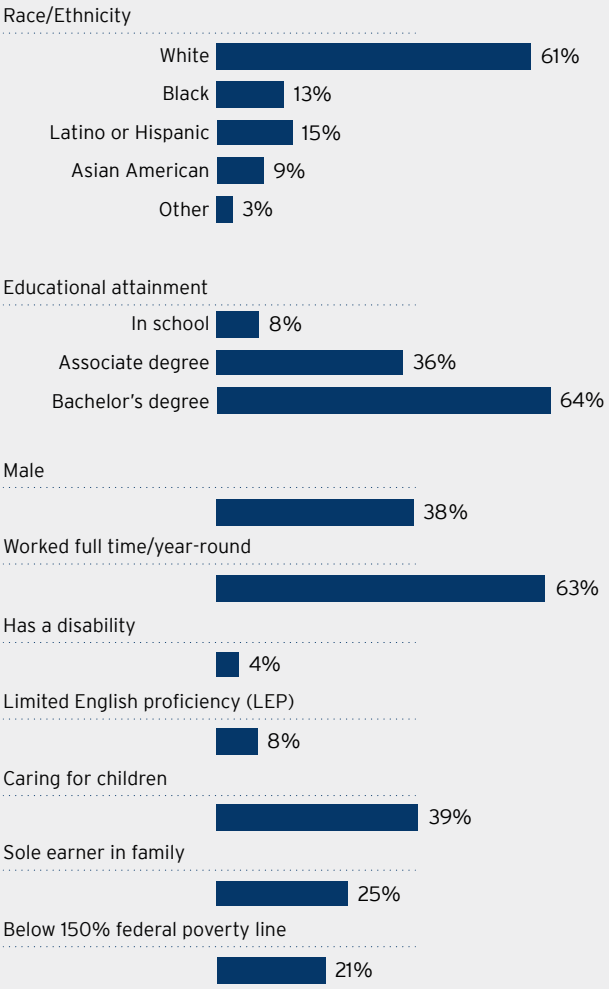
Cluster 6: Ages 25-50, with an associate degree or more

Individuals in this cluster have an associate, bachelor's, or graduate degree and are between the ages of 25 and 50. Compared to the other clusters of 25- to 50-year-olds, this group is the most likely to be female, white, and a secondary earner in their family. They also appear to be the most economically stable, with fewer than one in five receiving safety net assistance and just over one in five living below 150% of the federal poverty line. They are more likely to work in education and administrative or management positions than low-wage workers overall.

A fictionalized example of this group include:

Julie (age 40) is preschool teacher with an associate degree. She is married with two preteen children, and her paycheck supplements her husband's income.

7.6 million people
14% of low-wage workers



Source: Brookings analysis of American Community Survey 5-year Public Use Microdata Samples

Cluster 7: Ages 51-64, with a high school diploma or less

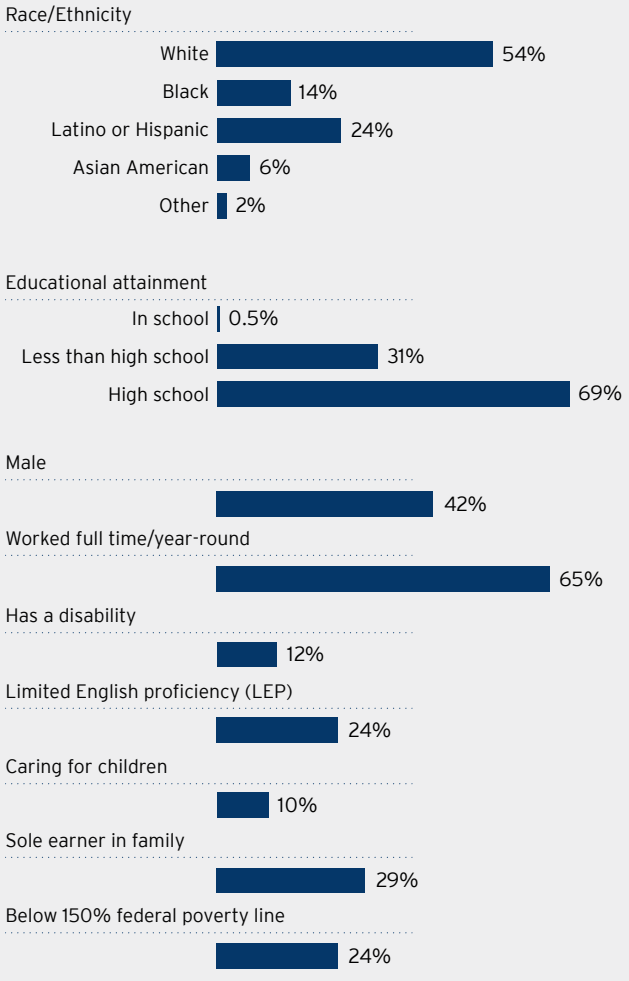
The individuals in this cluster are between the ages of 51 and 64; nearly 70% graduated from high school, while the remainder do not have a diploma. They are the most likely of any group to have worked full time year-round. There are indications that many in this group are economically vulnerable, with relatively high disability rates (12%) and the highest receipt of safety net benefits (22%) of the three 51-64 age clusters. Because these workers are older, it is unlikely they will see significant wage increases as they approach retirement.

Fictionalized examples of this group include:

Paul (age 53) is a shipping and receiving clerk. He started using a wheelchair several years ago due to rheumatoid arthritis. His wife also works, and between their two incomes they are able to get by—although they have not been able to save much.

Betty (age 56) is a hospital housekeeper with a high school education. She makes enough to support herself and lives alone.

5.6 million people
10% of low-wage workers



Source: Brookings analysis of American Community Survey 5-year Public Use Microdata Samples

Cluster 8: Ages 51-64, with some with some postsecondary education but no degree

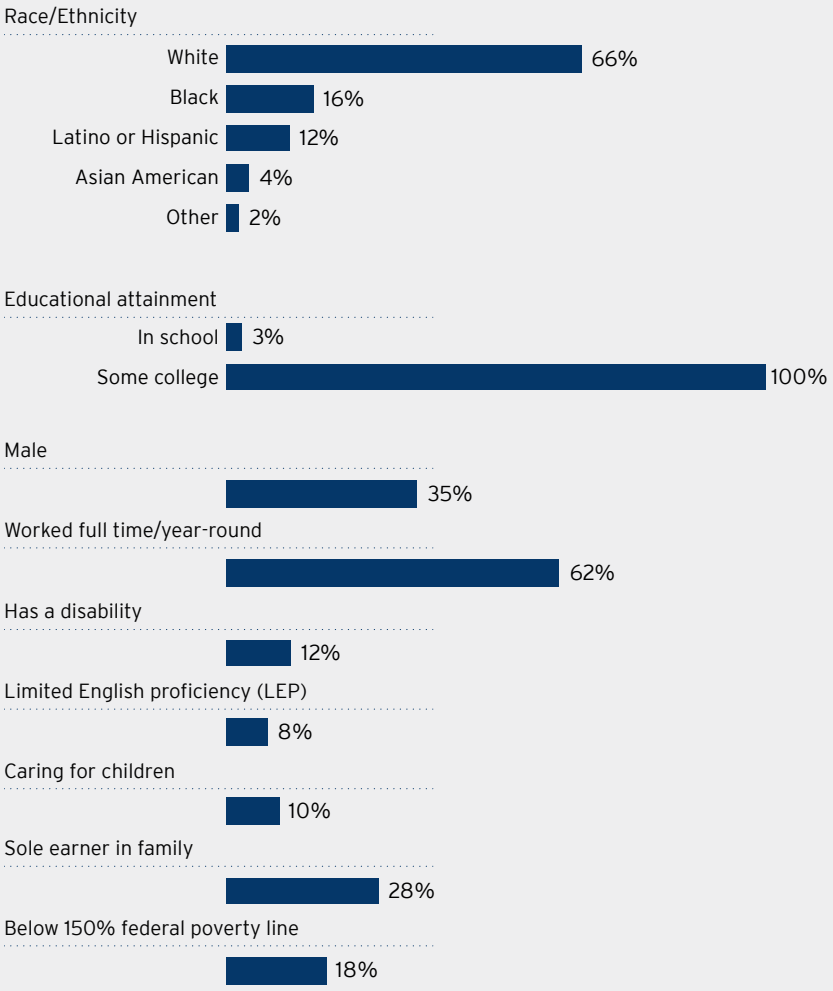
Individuals in this cluster are ages 51-64 with some education beyond high school, but do not have a degree. This group is primarily female, native-born, white, and English-speaking. This cluster is the most likely to be a veteran and to report having a disability. Fewer than one in five receive safety net benefits or live below 150% of the federal poverty line. This group is the most likely to work in administrative positions.

Fictionalized examples of this group include:

Helen (age 51) was a stay-at-home mom, but when her children moved out of the house, she went back to school to earn her Child Development Associate Credential and now works in a day care center. Even though she and her husband don't need the extra money, she has enjoyed getting back in the workforce.

Lorenzo (age 61) is a delivery truck driver. He was a machine maintenance worker until he was laid off by his employer. His substantial on-the-job training has been difficult to translate to another, equally well-paying position. He is divorced, with grown children and lives alone.

2.3 million people
4% of low-wage workers

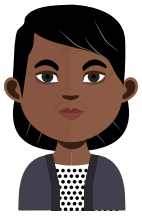


Source: Brookings analysis of American Community Survey 5-year Public Use Microdata Samples

Cluster 9: Ages 51-64, with an associate degree or more

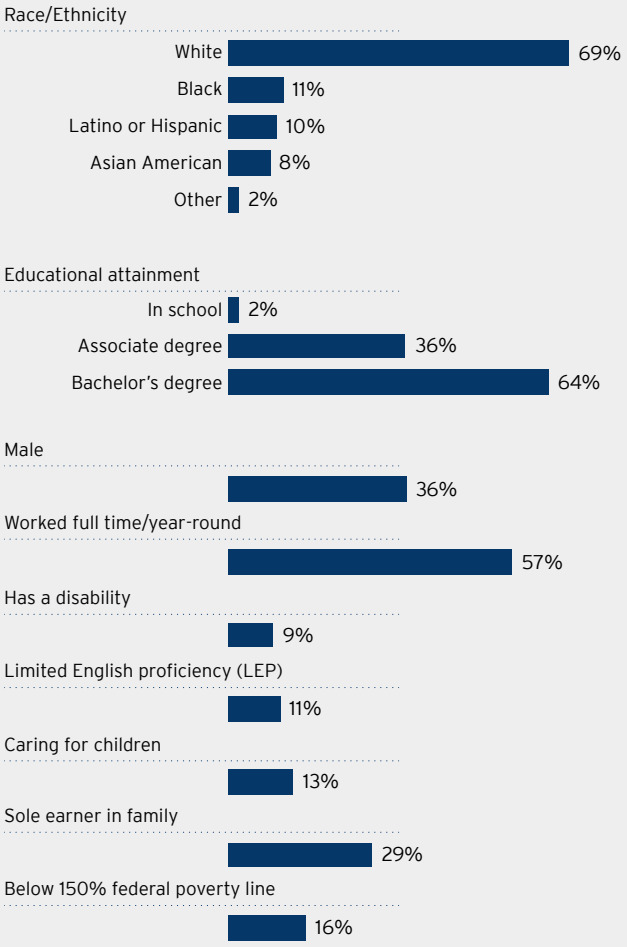
Individuals in this cluster are ages 51-64 and have a postsecondary degree. Seven out of ten workers in this cluster are white, although there is a relatively high concentration of Asian American workers as well. This group is the least likely to live below 150% of the federal poverty line or receive safety net assistance and is the most likely to work in occupations related to education. Workers in this cluster are nearing the end of their careers and are unlikely to see additional wage gains.

A fictionalized example of this group include:



Donna (age 54) is a part-time administrative assistant. She has been in and out of the labor force over the years as she was raising her kids, so she and her husband have relied primarily on his salary to support themselves.

2.4 million people
5% of low-wage workers



Source: Brookings analysis of American Community Survey 5-year Public Use Microdata Samples

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For More Information

Martha Ross
Fellow
Metropolitan Policy Program at Brookings
mross@brookings.edu

Nicole Bateman
Research Analyst
Metropolitan Policy Program at Brookings
nbateman@brookings.edu

1775 Massachusetts Avenue, NW
Washington, D.C. 20036-2188
telephone 202.797.6139
fax 202.797.2965
www.brookings.edu/metro