



HIRING WELL, DOING GOOD IN GEORGIA

EMPLOYMENT AND EARNINGS PATTERNS AND PERSPECTIVES ON POLICY

ROBERT I. LERMAN | JANUARY 2018



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Hiring Well, Doing Good in Georgia

Georgia faces serious challenges in the effort to strengthen and expand the middle class. Earnings and income inequality are higher than the already high levels overall in the U.S. Educational attainment remains uneven; only about one in four men, ages 25-34, have at least an Associates (AA) degree. Economic mobility in the Atlanta metropolitan area is among the lowest of all metropolitan areas in the U.S. (Chetty et al. 2014).

Georgia's Department of Education reports graduation rates that are less than 80 percent. Over half of those without at least an AA degree have family incomes in poverty or near poverty levels. For the 513,000 young Georgians (25 to 34-year-olds) with at most a high school degree, poverty and near poverty rates reach over 60 percent. As of 2016, about one in three of these young Georgians were without jobs, despite an unemployment rate of about 7 percent for this age group. Among black young men, nearly 30 percent did not have jobs.¹

A variety of programs try to upgrade the skills of these young adults sufficiently to improve their prospects in the labor market. However, their limited success suggests the need to develop significant improvements in policy and operational performance.

Georgia's economy suffered larger job losses in percentage terms than the U.S. during the Great Recession, but regained jobs faster as well. Between 2007 and 2010, Georgia's employment level declined by nearly 9 percent, a substantially higher drop than the 5 percent job losses for the entire U.S. However, since 2010, jobs recovered faster in Georgia, as 2017 employment levels reached 12 percent above their 2010 levels. The gain for the entire U.S. was 9 percent. Unemployment rates mirrored these trends, with Georgia's 2010 rate reaching 10.4 percent compared to the 9.6 percent rate for the U.S. As of April 2017, Georgia's unemployment rate stood at 5.0 percent, or modestly above the nation's 4.4 percent unemployment rate.

So, where does Georgia stand today in providing jobs and earnings for its population? What share of the adult and youth populations hold jobs? What share can find only part-year work? Which groups suffer from low employment and earnings? This report begins by examining patterns and trends of unemployment and non-employment in Georgia by demographic groups, family status, and regions within Georgia. It describes the educational attainment of Georgia's adult, non-elderly population. It analyzes the relationships between worker characteristics and earnings. It presents baseline data on the employment, earnings, and industry trends in the state of Georgia and in regions within Georgia. The analysis information in this report sets the foundation for a review of programs and policies that can enhance job and career outcomes for those in the state of Georgia.

¹ These estimates come from tabulations by the author from the 2015 American Community Survey.

The next sections present data on Georgia’s demographic, educational, and employment patterns. The focus is on employment, earnings, education, and race, as measured in the household survey data. We then turn to the industrial employment patterns and trends, incorporating geographic differentials within Georgia, and provide a summary picture of Georgia’s occupational distribution and the earnings patterns within occupations.

Labor market trends have effects throughout society. As highlighted by the Georgia Center for Opportunity, employment patterns can influence the utilization of public assistance programs, incarceration rates, educational enrollment, and family instability. In turn, these can have ripple effects on family relationships, health, hardship, and children’s achievement. By comparing Georgia counties over time, we can estimate the statistical relationships between labor market indicators (such as employment and earnings) and these outcomes. The American Community Survey contains variables that track educational attainment and family structure, including marriages and young children. Data from the Centers for Disease Control and Prevention can provide information about birth rates, including among single parents.

Although the analysis covers the broad spectrum of ages, the focus is on recent high school dropouts and graduates surveyed in 2015 (ages 23-28 in the 2015 American Community Survey). In addition, we examine the patterns by county, grouping them into workforce investment board groupings. By gaining a granular understanding of the trends buffeting specific regions, industry sectors, and subpopulations, this memo will identify areas where intervention may be most effective.

After documenting education and employment trends, the report turns to policies aimed at improving these outcomes. The policy section reviews employment, training, and career-focused activities in Georgia. It classifies policies and programs, paying special attention to career-oriented policies and to programs for those not earning or expected to earn a BA degree. After conducting this review, the report recommends developing ways of enhancing the performance of existing approaches.

One specific focus is on how to expand the role of apprenticeship in Georgia, especially for middle skill positions that can be readily accessible to young people wishing to enter good careers. By emphasizing “learning by doing” as a paid employee, apprenticeships are especially effective in preparing workers to gain a valued occupational qualification. They enhance youth development by providing a more engaging experience than schooling does and by linking young people to mentors. They encourage employers to upgrade jobs and develop job ladders.

Apprenticeships currently represent a much smaller share of the workforce in Georgia and the U.S. than in most other advanced countries. However, expanding apprenticeship is feasible and a highly cost-effective strategy for restoring opportunity. As with any apprenticeship initiative, the central goal will be to stimulate

employer use of quality apprenticeships. We conclude this report by highlighting potential barriers to expansion as well as by presenting a range of recommendations for expanding apprenticeship in Georgia.

Georgia's Employment and Earnings Patterns

The analysis draws about several data sources. For employment and earnings patterns by detailed characteristics of persons, we rely on the American Community Survey (ACS), a national survey conducted by the U.S. Bureau of the Census (Ruggles et al. 2017). The Bureau of Labor Statistics' occupational wage surveys yield information on Georgia's occupational structure and hourly wage patterns. A third source is the Longitudinal Employer-Household Dynamics (LEHD) dataset produced by the U.S. Census Bureau. It covers quarterly payroll employment of Georgia establishments covered by the unemployment insurance system, well over 90 percent of total employment. The LEHD yields employment and earnings information by age, sex, and race as well as by county and industry.

Georgia experienced rapid growth in employment until the sharp decline in the Great Recession. After jobs increased from 3.6 to 4.6 million between 1996 and 2007, Georgia experienced losses of 400,000 jobs between 2008 and 2010. Employment began to recover but did not reach 4.6 million again until 2016. As of 2017, employment in Georgia is now 200,000 higher than the previous peak.

The pattern of unemployment rates largely mirrors the overall employment trends. However, unlike the recovery in jobs, the 2017 unemployment rate still stood slightly above the 2007 unemployment rate and well above the 2000 level.

Poverty Levels in Georgia: 2013-2015

Georgia's poverty rate has remained well above average in recent years. While the official rate in Georgia averaged 17.9 percent over the 2013-2015 period compared to the national average of 14.5 percent, poverty adjusted for living costs and selected benefits and taxes was 16.8 percent compared to the 15.1 percent national rate. Thus, the ratio of Georgia's poverty rate to the national rate was 1.23 for the official measure of poverty but only 1.11 for the adjusted poverty rate (Renwick and Fox 2016).

Education and Employment Patterns among Subgroups in Georgia: 2015

Education and employment patterns vary by age. To examine the non-elderly population that has largely completed schooling, we begin with a look at the employment and educational levels of Georgia's 23-64-year-olds, using the latest available single year of data from the American Community Survey.

Overall, just over 71 percent of the adult population held jobs in the average month of 2015 (Table 1). But the job-holding varied substantially by educational attainment. Of the nearly 13 percent of the population that did not complete high school, nearly half did not hold a job. At the upper end, of those with graduate or BA degrees, all but 13-19 percent held jobs. Note that the employment share of those with only a GED (at 57 percent) was significantly lower than the comparable rate for those with a full high school diploma but no college. A second interesting aspect of the table is that those with some college fared only modestly lower in employment than those with an Associates' degree. Georgia's educational attainment pattern is virtually identical to the average for the U.S. So, too, are the employed shares by education.

Not surprisingly, as Table 2 reveals, men are more likely to hold jobs than women, with over three in four (76.6 percent) employed in 2015. However, men are far more likely to lack a standard high school diploma than women. About 20 percent of 23-64-year-old men in Georgia report not achieving a high school diploma; the comparable figure for women is 14.6 percent. At the upper end of the educational distribution, women BA and graduate degree rates are 20.7 percent and 12 percent, or higher than the male rates of 18.5 percent and 9.6 percent.

Joblessness is considerably worse for the black male population, especially black men with low levels of education. Overall, as Table 3 shows, about one in three black men in the 23-64-year-old age group was not employed in a typical month in 2015. Again, the rates vary widely by educational level, with only 40 percent of dropouts and 46 percent of GED holders having jobs; in contrast, employment at the BA and graduate school levels reach well over 80 percent and the rates are nearly equivalent to those for all men.

Nearly one in 10 adult men in Georgia are of Hispanic origin. As Table 4 highlights, employment levels are quite high for Hispanic men, despite their relatively low levels of educational attainment. A striking 44 percent of Hispanic men lack at least a full high school diploma, yet the employment rates of this group of non-graduates is about 80 percent. The employment numbers are quite striking in illustrating that low levels of education are not necessarily associated with low employment shares.

Figures 1 and 2 highlight the age and race differences in employment among men and women, respectively. Not surprisingly, most 16-19-year-olds were not employed in March 2016, but joblessness falls

sharply by the time men reach their late 20s. Still, several numbers are of major concern. For example, nearly half of black men in their early 20s were not employed; nearly 30 percent were still not working at ages 25-34.

Turning from education to race differences by age group, we find the patterns by race are strikingly different among women than among men. In the prime age groups of 25-54, black women are more likely to hold a job than are white women. The age profile of joblessness is like the age profile for men. The highest levels of employment and thus lowest rates of joblessness take place in 35-44 age group. For both sexes, joblessness increases as Georgians reach their 50s and 60s.

Marital status appears to account for some of the racial differences in employment, especially among men. As Table 5 indicates, black married men have employment rates almost as high as non-Hispanic white married men. The largest race differences in employment are among separated, widowed and never-married men. In the case of women, black employment rates are higher than white rates in nearly every marital status category.

Since only 32 percent of black 23-64-year-olds are married (spouse present) compared to 59 percent of white 23-64-year-olds, the overall racial gap in male employment rates is particularly large (66.9 percent vs. 79.3 percent). One way of examining how much of the gap is associated with differences in marital status is to ask what the black employment rate would be if black men had the same marital status patterns as white men but retained the black employment rates within each marital status. It turns out that such a shift would raise black employment rates to 72.1 percent. From this perspective, over 40 percent of the black-white male employment gap is associated with differences in marital status.

Holding a job is one thing but earning a good salary is another. Data on earnings in Georgia are available from several sources. The American Community Survey (ACS) provides information on annual earnings based on self-reports that can be linked with the characteristics of workers. Table 6 captures the median levels of earnings by education level reported for workers with at least 40 weeks of work in the prior year.

The education advantages are large and significant, especially between those who have and have not completed a BA degree. Note that having a high school diploma yields higher earnings than obtaining a GED. Also, worth noting is the relatively small advantage conveyed by an AA degree over those with some college. Table 7 reveals the substantial overlap in earnings by education. A BA graduate at the 40th percentile has virtually the same earnings as an AA graduate at the 60th percentile and only modestly more than someone with some college but no degree. These data do not adjust for differences in living costs nor in the costs of obtaining college degrees. Other researchers have found that those with BA degrees are more concentrated in high cost communities than those with less than BAs.

Turning to earnings differences by race, we find sizable racial gaps within educational groups among men but less dramatic differences among women. While black workers are less likely to have completed a BA degree than whites, the racial earnings differences within educational categories are almost as high as the overall differentials among men.

FACTORS INDEPENDENTLY ASSOCIATED WITH EMPLOYMENT AND EARNINGS

Multivariate analyses provide one way to summarize the independent associations of age, education, marital status and race with employment and earnings. These capture the role of one factor (say, marital status) while controlling for the effects of other facts (say, age and education). In applying the multivariate techniques to determinants of employment of adults, ages 30 to 54, we find the gap between white and black men narrows substantially after taking account of education and marital status. Note in Table 8 that when controlling only for age, the predicted probability of employment is 18.5 percentage points lower for black men than for white men (the excluded race category). After taking account of education differences in column (2), the gap drops to 14.2 percentage points. The differential falls to 9.2 points when controlling for education and marital status. With these controls, Hispanic men show an 8.1 percentage point higher level of employment. Another noteworthy point shown in Table 8 is that those with GEDs have employment levels almost as low as those with no diploma or GED. Men whose highest educational attainment is a GED had employment rates that were 14-16.8 percentage points lower than men with a high school diploma (the excluded category).

The multivariate analyses of earnings patterns show significant roles for education and marital status. While accounting for these variables reduces the observed earnings differentials, very substantial gaps in earnings remain, both for black and Hispanic workers. Hispanic workers are on par or better than white workers in employment but fall far short in terms of annual earnings. Similarly, the racial gap in employment is far lower than the earnings gap, even after controls for education and marital status.

EDUCATION AND LABOR MARKET PATTERNS AMONG GEORGIA'S YOUNG ADULTS

The start of one's career is often critical to an individual's career and ability to form and participate in a family. The middle 20s is a good age to assess early careers because it is the period well after young people complete their schooling. In this section, we assess the employment situation among Georgia's young adults, ages 23-28. As Table 10 reveals, nearly three in four held jobs in a typical month in 2015. But, the employed proportions varied widely by educational attainment, with joblessness at about 50 percent for those who did not attain a high school diploma. Note especially the much lower employment levels of those with GEDs than among those with a full high school diploma but not college.

The education and employment levels vary substantially by sex, as Tables 12 and 13 illustrate. Nearly one in five men in their mid-20s lack a high school diploma and only about 28 percent have achieved an AA or BA degree. By comparison, only 11 percent of women lacked at least a high school degree and almost 40 percent had achieved an AA or higher degree.

Put another way, for every man in his mid-20s with a BA or graduate degree, there were 1.45 women with at least a BA degree. Employment rates of women with a BA or higher degree were almost identical to those of men with college degrees. However, at lower levels of education, men outpaced women in holding jobs.

The educational differentials by sex are even more pronounced among blacks in Georgia. Nearly 22 percent of black men in their mid-20s (about 31,000) lacked a high school diploma and 20 percent had at least an AA degree. By contrast, only 10 percent of black young women had not earned at least a high school diploma and over 31 percent achieved an AA or higher degree. The Census counts show fewer black men than black women in their mid-twenties, though some of the gap may be due to differential Census undercounts of young men. Still, the official figures show 1.6 women with a BA or higher for every one man with a BA or higher.

The employment consequences of low education levels are severe. Just over one in three black men in their mid-20s who lack a high school diploma was employed in a typical month in 2015. In contrast, over 60 percent of those with only a high school degree held a job and the employment of those with at least an AA degree was about 85 percent. Overall, black women in their mid-20s were more likely than black men in this age group to hold a job. The gap was not trivial, as 73 percent of women and only 66 percent of men were employed.

Because the samples are small for some subgroups of individuals, ages 23-28, Table 14 reveals employment patterns for the broader age group of 23-34-year-olds. In this case, we examine the share of black young men and women who worked at least 40 weeks in the prior year (about 9 months). The figures show strikingly low employment levels for men in their mid-20s to early 30s, especially among those with the least formal education. About 60 percent of men in this age group did not work at least 9 months in the prior year. These should be prime periods of employment. Even among those with an AA degree or some college, about one in four men had jobless periods of at least three months. Again, we find higher levels of employment in the prior year for black women than for black men.

REGIONAL EMPLOYMENT PATTERNS ACROSS GEORGIA

The state of Georgia is divided in 11 Workforce Investment Areas: North West Georgia, Georgia Mountains, Cobb, Atlanta Regional, West Central Georgia, North East Georgia, Macon-Bibb, Central Savannah Georgia, East Central Georgia, and the Coastal Region. The following tables breakdown the employment status of workers

ages 23-28 by two key demographic variables: gender and race. The data clearly show the weakest employment levels in the Georgia Mountains, Central Savannah River, and Southern Georgia.

Tracing out the employment and earnings trends by geographic areas requires that we turn to administrative data, made available by the U.S. Census in their Quarterly Workforce Indicators (QWI Explorer) program. The figures come from quarterly records employers are required to report to the Unemployment Insurance (UI) system. The data provide information on employment and earnings of all covered UI employment (usually over 90 percent of total employment).

Overall, Georgia had meager job growth since 2006 because of the large decline in jobs during the Great Recession. However, the recovery since 2012 has been rapid, with jobs increasing at annual rate of 2.7 percent per year. Over the last decade, increases in covered employment rose at the highest rate for the Fulton County and the Georgia Mountains WIBs. Moreover, employment growth over the last four years was especially rapid in these two counties, with job growth reaching 4.1 and 3.6 percent per year. The Cobb County WIB experienced rapid job growth as well over these periods. Other tabulations using the QWI data show that from 2006 to 2016, percentage increases in employment were higher among women than among men. For the last four years, job gains have been similar, rising over 10 percent from 2012 to 2016. As of the second quarter of 2016, more women than men held jobs in covered employment.

The levels and rates of growth of earnings vary widely by geographic area as well (Table 16). The average level of quarterly earnings in the Atlanta WIB area, at \$6,754, was more than double the levels of South Georgia, Southeast Georgia, East Central Georgia and several other WIBs. Although some of the differentials are associated with differences in living costs, the dollar amounts of geographic differences are striking. The links between earnings growth, earnings levels, and employment growth are potentially complex. Given a positive shock, such an increase in demand for goods and services in a specific area, one would expect a positive correlation between employment and earnings growth. High levels of earnings may limit employment growth. In examining the relationships among WIBs, we find no correlation between earnings and employment growth over the 2006-2016 period, but a positive and significant correlation between earnings growth in the last four years and employment growth in the last 10 years. This indicates that rapid growth in jobs eventually generates earnings gains.

SHIFTS IN INDUSTRY EMPLOYMENT IN GEORGIA

The changing industry patterns in Georgia no doubt have influenced the labor market. Using data from the QWI, we find that manufacturing employment declined from about 550,000 in 2000 to about 400,000 in 2016. For men, the proportion of jobs in manufacturing fell from 18 percent in 2000 to 13 percent in 2016. Combining employment in manufacturing with those in construction, mining, agriculture, and transportation, we find these

industries made up 35 percent of men's jobs in 2000 but only 28 percent in 2016. As of 2016, men averaged about \$5,200 per month in earnings. Offsetting these declines were mostly jobs in retail and wholesale trade, accommodation and food services, and administration and operation of waste services. The mean monthly salary for men in these industries was only \$4,325, or about 20 percent less than in industries where jobs were less common. In one industry, professional and technical services, the share of men's jobs increased from 8.4 percent to 9.5 percent. Average monthly earnings for men in this sector, at nearly \$8,500, far surpassed earnings in other sectors, including manufacturing. But the educational requirements are no doubt higher than for manufacturing jobs.

The decline in manufacturing jobs affected women as well, as manufacturing's share of women's employment fell from 10 percent of employment in 2000 to 6 percent in 2016.

Increasing numbers of jobs in health care and education more than offset the declines in manufacturing. Although the health and education jobs pay less than manufacturing jobs as of 2016, the gap is relatively small. Both are in the range of \$3,500-3,800 per month. Other shifts in industry employment for women included small declines in the share in finance, insurance and information and small increases in the share in administration and operation of waste services.

EMPLOYMENT AND EARNINGS BY MAJOR OCCUPATION GROUPS IN GEORGIA

Georgia's occupational distribution offers insight into the types of skills required in the Georgia labor market. Table 17 lists the number of jobs in each major occupational category, along with the median annual earnings, annual earnings of workers at the 25th percentile of earnings, and the ratio of earnings of those at the 75th percentile to those at the 25th percentile.

On the bases of these Bureau of Labor Statistics data, median earnings were \$34,330 while annual earnings at the 25th percentile were only \$22,120. Overall, those at the 75th percentile earned 2.56 times earnings of those at the 25th percentile. It is interesting to note that even within these educational groups, we often see 75:25 earnings ratios of about 1.7-1.8 and in many cases 75:25 ratios over 2. One implication is that earnings vary greatly within major occupational categories. Thus, for example, a worker at the 75th percentile of annual earnings within the installation, maintenance, and repair occupations earns almost twice as much as a worker at the 25th percentile within the same broad occupation group. Even within more detailed occupational classifications, one finds a substantial dispersion in earnings.

The fields where one might expect moderate to less educated individuals to work include building maintenance, construction, food preparation and serving, healthcare support occupations, installation and repair occupations, sales and related occupations, transportation, and production occupations. Although

earnings average only a low amount in these fields, several pay 1.8 and more times those paid at the 25th percentile of earnings.

SUMMARY OF KEY TRENDS AND CONCERNS

Employment opportunities have increased significantly since the Great Recession throughout Georgia. However, selected marginal groups have yet to participate fully in the economy. In particular, young men with limited education and black young men show surprisingly low employment levels. As an example, we find that less than half of men who did attain a high school diploma—whether they did or did not earn a GED—were employed or employed for at least nine months over the year. Educational levels of young men were far below those of young women. In the case of young adult black workers, women were more likely to hold jobs than men.

This report documents the wide range of employment and earnings patterns across the state and the differential trends in earnings and employment. We find that high growth in employment over the last ten years finally materialized into higher than average growth in earnings.

One potential reason for weak earnings growth of male workers is the shift in industries from higher wage manufacturing, construction, and mining jobs to lower paid jobs in other industries. Finally, occupational differences in employment and earnings are significant. The high degree of variation in earnings both across and within occupations suggests occupational fields that might be rewarding, even for workers with limited amounts of formal education. However, taking advantage of these opportunities will require serious training to ensure that new entrants into the relevant field gain sufficient expertise to earn and produce at the high levels of productivity that can justify high earnings within the occupation. Because men, especially black men, attain lower levels of education than women, the potential role of high quality and relevant training is particularly important for improving their job and career prospects. The next section considers ways of upgrading training and careers beyond increasing formal education.

Perspectives on Policy

Current education and training policies have achieved modest success but have left many Georgians behind in terms of earnings and career development. While job openings are at their highest level since the collection of official data on openings began, many skilled positions remain unfilled for long periods of time. The expanded demand for labor and skills presents opportunities for upgrading the skills, earnings, and careers of Georgia’s workers, especially young people about to enter the labor market. But, how can Georgia take advantage of these new opportunities? Sticking with current policies are unlikely to generate significant gains for most of Georgia’s workforce. What else could yield improved outcomes? To examine this question, this section begins with a review of existing programs, then makes the case for focusing on apprenticeship as the most cost-effective model of skill and career development, and finally presents recommendations for generating a large-scale expansion of youth apprenticeship as a vehicle for significantly widening routes to rewarding careers.

Some Existing Programs

The largest publicly sponsored programs aimed at preparing individuals for the workforce are the school system, including late high school and postsecondary schools, and workforce programs. The primary nationally-sponsored program is funded through the Workforce Innovation and Opportunity Act (WIOA). But, the numbers receiving training in Georgia under WIOA are quite small relative to school-based programs. Only about 3,000 adult participants who exited programs between April 2015 and March 2016 received training; 1,136 dislocated workers exiting in 2015-2016 also received training services (U.S. Department of Labor 2016). These numbers are quite small in comparison to adults lacking jobs or earning low wages. Moreover, they are tiny compared to the numbers in school-based programs in high schools or community and career colleges.

In contrast, the scale of Georgia’s Career and Technical Education (CTE) programs is quite large. As of 2015, there were nearly 120,000 high school students who were CTE concentrators (took at least three courses in a career cluster). Overall, Georgia graduates about 109,000 students annually, or nearly 80 percent of those entering 9th grade. About 60 percent of high school students took at least one CTE course. Georgia reports a very high share (95 percent) of CTE concentrators graduated high school, well above the rate for all Georgia students. In one way, the figure may overstate the impact of CTE on graduation since students who lasted long enough in high school to become a concentrator are already near graduating. It would be worthwhile measuring graduation rates of those who intend to concentrate in a career cluster. Still, some literature suggests a positive impact on high school graduation from participating in a CTE courses (Gottfried and Plasman 2017).

Overall, Georgia’s combined public and private enrollment in 2-year and 4-year post-secondary institutions, including post-baccalaureate students, reached 530,000 in 2015. To put the numbers in perspective, the total number of 18-22-year-olds was nearly 750,000 in 2015. The share of Georgia’s 18-24-year-olds in postsecondary education was about 38 percent, or 4.5 percentage points below the national average of 42.5 percent. Georgia boasts a large number (25) technical colleges. The number of enrollees in two-year public degree-granting colleges is over 120,000 and another 6,000 were enrolled in for-profit, private two-year colleges. About 90,000-109,000 students participated in a post-secondary career cluster.

A high share of high school graduates—over 60 percent-- enrolls in post-secondary programs. Unfortunately, as the household survey data in Table 2 show, post-secondary graduation rates are relatively low. By age 23, when a student might be expected to have completed four years of college and certainly two years in an AA program, only 27 percent of men and women have completed any college degree. At that age, 15 percent had not earned a high school diploma; among men, the figure was 19 percent. About 39 percent had no more than a high school diploma and no college at all. Educational attainment did rise with age. Among 27-28-year-olds, almost 40 percent had attained at least an AA degree. Still, only about 30 percent had earned a BA or higher degree. Again, the advantage of women in attaining BA or higher degrees was striking, with the BA+ share reaching about 31-37 percent among women and 25 percent or less among men. Thus, notwithstanding the efforts of the educational system, over 60 percent of youth in their 20s lacked any degree beyond high school. It is too early to determine whether the current cohorts of high school students will achieve higher levels of educational attainment than cohorts of today’s 21-28-year-olds. Further, because existing household data rarely capture other certifications that have value in the labor market, the available data might understate the skills of young adult workers. On the other hand, the earnings patterns are consistent with shortcomings in skill among a high share of workers in their 20s.

Employment and earnings patterns show that much work remains if Georgia is to increase the labor market success of those in their 20s. Employment rates and median earnings increase with age. The share of men not holding a job falls almost in half between ages 21-22 and 28, falling from near 40 percent to 22 percent. Median earnings of those who worked in the prior year rises from \$10,000 at age 21 to \$30,000 at age 28. But, counting all men, median earnings at age 28 reached only \$25,000. Earnings of men at the 25th percentile of earnings was only \$17,000.

Why Expand the Apprenticeship System?

In Switzerland, the country with the most far-reaching apprenticeship system, over 93 percent of 25-year-olds have attained either a BA level degree or an occupational certification valued in the labor market. Certainly,

while Georgia is very far from achieving such high levels of skill development, expanding apprenticeship would help large numbers of young people attain valuable credentials, with not only positive effects on employment and earnings but also an increased sense of pride and satisfaction.

Apprenticeship training is a highly-developed system for raising the skills and productivity of workers in a wide range of occupations, with demonstrated success abroad and scattered examples of success domestically. Apprentices are employees who have formal agreements with employers to carry out a recognized program of work-based and classroom learning as well as a wage schedule that includes increases over the apprenticeship period. Apprenticeship prepares workers to master occupational skills and achieve career success. Under apprenticeship programs, individuals undertake productive work for their employer; earn a salary; receive training primarily through supervised, work-based learning; and take academic instruction that is related to the apprenticeship occupation. The programs generally last from two to four years. Apprenticeship helps workers to master not only relevant occupational skills but also other work-related skills, including communication, problem solving, allocating resources, and dealing with supervisors and a diverse set of co-workers. The course work is generally equivalent to at least one year of community college.

Apprenticeships within the U.S. and elsewhere show how construction occupations can reach high wages and high productivity. The question is whether the model can be extended and attract firms to upgrade other occupations. Apprenticeship expansion holds the possibility of substantially improving skills and careers of a broad segment of the U.S. workforce. Completing apprenticeship training yields a recognized and valued credential attesting to mastery of skill required in the relevant occupation.

Apprenticeships are a useful tool for enhancing youth development (Halpern 2009). Unlike the normal part-time jobs of high school and college students, apprenticeships integrate what young people learn on the job and in the classroom. Young people work with natural adult mentors who offer guidance but allow youth to make their own mistakes. Youth see themselves judged by the established standards of a discipline, including deadlines and the genuine constraints and unexpected difficulties that arise in the profession. Mentors and other supervisors not only teach young people occupational and employability skills but also offer encouragement and guidance, provide immediate feedback on performance, and impose discipline. In most apprenticeships, poor grades in related academic courses can force the apprentice to withdraw from the program. Unlike community colleges or high schools, where one counselor must guide hundreds of students, each mentor deals with only a few apprentices.

Apprenticeships are distinctive in enhancing both the worker supply side and the employer demand side of the labor market. On the supply side, the financial gains to apprenticeships are strikingly high. U.S. studies indicate that apprentices do not have to sacrifice earnings during their education and training and that their

long-term earnings benefits exceed the gains they would have accumulated after graduating from community college. The latest reports from the state of Washington show that the gains in earnings from various education and training programs far surpassed the gains to all other alternatives. A broad study of apprenticeship in 10 U.S. states also documents large and statistically significant earnings gains from participating in apprenticeship.

In the United States, evidence from surveys of more than 900 employers indicates that the overwhelming majority believe their programs are valuable and involve net gains. Nearly all sponsors reported that the apprenticeship program helps them meet their skill demands—87 percent reported they would strongly recommend registered apprenticeships; an additional 11 percent recommended apprenticeships with some reservations. Other benefits of apprenticeships include reliably documenting appropriate skills, raising worker productivity, increasing worker morale, and reducing safety problems. A recent Department of Commerce study found apprenticeships generally yield high rates of return, even in companies spending over \$40,000 per apprentice.

One aspect of U.S. apprenticeships is their varying character. Some are registered with the Department of Labor’s Office of Apprenticeship (OA), others have components like registered apprenticeships but are not registered, and still others are youth apprenticeships. Official data generally fail to track unregistered apprenticeships; evidence suggests their numbers exceed registered apprenticeships. Georgia has one of the few youth apprenticeship programs in the U.S. Like other states, Georgia’s registered system has a minimal budget for apprenticeship and a heavy emphasis on only one industry—construction. Again, like other states, Georgia has only one employee from the federal Office of Apprenticeship.

Expanding Adult and Registered Apprenticeships in Georgia

Georgia’s registered apprenticeship system is quite small. As of Fiscal 2016, Georgia had 6,353 apprentices and only 774 completers. Apprentices constitute only 0.12 percent of the Georgia workforce, only half the very low national rate of 0.26 percent. Thus, the share of apprentice completers is well under 1 percent of a single year’s cohort. Neighboring South Carolina has nearly the same number of apprentices as Georgia, with less than half of the Georgia labor force. One caveat to these figures is the likelihood that like other states, Georgia probably has thousands of apprenticeships not registered with no government certification.

While the number of apprentices in Georgia is small, the estimated gains are strikingly large. A study by Mathematica Policy Research (Reed et al. 2012) found increases in earnings associated with undertaking an apprenticeship in Georgia was nearly \$9,000 per year (2017 dollars) six years after entering the program and over \$6,000 per year nine years after entering the program. Estimates of cumulative gains over the first nine

years averaged \$73,000 and lifetime gains exceeded \$140,000 (both in 2017 dollars). Meanwhile, government costs associated with the federal office of apprenticeship were only about \$1,000 per apprentice.

Despite these extraordinary indicators of cost effectiveness, federal and state government spending on apprenticeship have been minimal. The Federal Office of Apprenticeship finances only one official in Georgia charged with stimulating apprenticeships, helping companies register their programs with the federal office, and overseeing aspects of registered apprenticeship regulations.

Georgia is trying to expand the scope of apprenticeship, albeit with modest state funding. Justin Haight, who heads Georgia's WorkSmart program, is the state official responsible for registered apprenticeship. He has been instrumental in reaching out to employers and to workforce intermediaries. He cites state-wide funding for apprenticeship, including a state Strategic Industries Development Grant, HOPE grants for tuition in related instruction, and WIOA grants. In addition, Georgia won a federal American Apprenticeship Initiative (AAI) grant focused on increasing apprenticeships in advanced manufacturing.

Still, the scale of the effort in Georgia remains highly limited. One key problem is that even with AAI grant, Georgia's program has very few effective coordinators to market apprenticeships to individual employers and to help employers decide on the occupations they wish to apprentice, decide on the skills expected, and set up the program and material to submit for registration with the U.S. Department of Labor. Apprenticeship training coordinators are also vital to helping apprentices and employers draw on federal and state resources to finance the apprenticeship program, especially the start-up costs and costs of providing classroom instruction (related technical instruction).

In part, there is a chicken and egg problem. Because apprentices make up a small share of participants in all career-focused programs, it is hard to justify large direct funding. On the other hand, the absence of funding holds back the building of a robust apprenticeship system and scaling the number of apprenticeships. One way around this dilemma is to fund training organizations on a performance basis, paying them on a per-apprentice basis.

Recent developments in Great Britain highlight the importance of marketing and incentives. Britain succeeded in expanding apprenticeships from about 150,000 in 2007 to over 850,000 in 2013 through a combined national and decentralized marketing initiative. Alongside various national efforts, including the National Apprenticeship Service and industry skill sector councils, the British government provided incentives to local training organizations to persuade employers to create apprenticeships. Once apprenticeships reached a high level and became a well-recognized option for firms and workers, the British government imposed an apprenticeship levy of 0.5 percent on organizations with payrolls above 3 million pounds annually. Organizations could recoup their taxes by using them for apprenticeship programs. In addition, the government

continues to support apprenticeships financially at a level of over 1.2 billion pounds annually. In achieving scale, Britain's apprenticeships extend to a broad range of occupations, including engineering and accounting. Britain has now established a goal for governments to create enough apprenticeships so that they constitute 2.3 percent of government employment (Lerman 2017).

Georgia could learn from the case of England. It could build a state marketing campaign together with incentives and technical support to community colleges and other training organizations to market apprenticeships at the individual firm level. However, simply marketing to firms through existing federal and state agencies may not work if the staff lacks the marketing dynamism, sales talent, the ability to help firms select occupations and skill frameworks, and passion for expanding apprenticeship. Pay for performance is recommended: technical education and training organizations would earn revenue only for additional apprenticeships that each college or organization managed to develop with employers.

One possibility is to provide incentives to public and private education and training organizations. Every apprenticeship slot stimulated by the college/training organization increases the work-based component of the individual's education and training and reduces the classroom-based component. Assume the work-based component amounts to 75 percent of the apprentice's learning program and the school-based courses are only 25 percent of the normal load for students without an apprenticeship. By allowing training providers to keep more than 25 percent (say, 50-60 percent) of a standard FTE cost provided by federal, state, and local governments in return for providing the classroom component of apprenticeship, community colleges and other training organizations would have a strong incentive to develop units to stimulate apprenticeships. State and local governments could provide matching grants to fund units within technical training organizations to serve as marketing arms for apprenticeships. The marketing effort should encourage government employers as well as private employers to offer more apprenticeships.

Another way of expanding the number of well-qualified training coordinators is to train individuals currently working in workforce boards, employment agencies, and employer associations. Increasing the quality of representatives who can in turn listen to employers about their needs and show how apprenticeship can help employers meet those needs and who can then help the employer organize the apprenticeship and develop a system for recruiting well-qualified individuals interested in the field.

Although initially apprenticeship expansion will cost money, it will save money relatively quickly. Apprenticeships cost the government far less than high school or postsecondary education, yet achieve higher gains in employment, earnings, and occupational identity. Extending the initiative to support related instruction (normally formal courses) in an apprenticeship could increase apprenticeship slots and reduce the amount the federal government would have to spend to support these individuals in full-time schooling. One appropriate

step would be to shift some of the Perkins Act funding for career and technical instruction in schools to rigorous programs that combine school and work, primarily through apprenticeships.

Expanding and Upgrading Youth Apprenticeship

Georgia's youth apprenticeship system is already well ahead of nearly all other states. In 1992, the Georgia General Assembly passed a law directing the Departments of Education, Labor, and Technical Adult Education to develop and implement youth apprenticeship programs by 1996. Today, the program operates with over 7,000 apprentices. Georgia spends about \$3 million on its youth apprenticeship programs; at 7,000, the number of youth apprentices is somewhat higher than the entire number of registered apprentices. (Wisconsin budgets about \$4 million for about 3,000 youth apprentices). In Georgia, the funding largely pays for coordinators at about 347 schools. Often, coordinators are part-time on apprenticeship and can only allocate part of their time to selling and organizing employers to participate in Georgia's youth apprenticeship program and informing and screening students. The program is a subset of the Education Department's CTE system and of the effort to create work-based learning experiences, especially for CTE students. About 20,000 students participate in other work-based learning activities in addition to the 7,000 in youth apprenticeships.

During their freshman and sophomore years of high school, students learn about the possibility of joining the apprenticeship program in their junior and senior years. Students can then apply to participate in a structured program of at least 2,000 hours of work-based training and 144 hours of related courses. Apprentices can complete not only their high school diploma but also a post-secondary certificate or degree, and certification of industry-recognized competencies applicable to employment in a high-skilled occupation. The fields vary widely from energy to information technology, manufacturing, and transportation and logistics. Mentorship is a key part of the program, as are employer evaluations of the student's job performance, and the building of professional portfolios. Unfortunately, the completion rate for youth apprenticeships is low.

High schools are responsible for recruiting and counseling students, supporting career-focused learning, and assisting in identifying industry partners. Post-secondary schools participate in developing curriculum and dual credit arrangements. Businesses offer apprenticeship positions, provide each apprentice with a worksite supervisor, and insure that apprentices gain experience and expertise in all the designated skill areas. The worksite supervisors must participate in mentor orientation and training, so that they can guide students through all the skill areas and serve as a coach and role model. Parents must agree to and sign an educational training agreement and provide transportation to the student. Finally, young people must maintain high levels

of attendance and satisfactory progress in classes (both academic and career-oriented) and the development of occupational skills at the worksite.

Employers report high levels of satisfaction with the apprentices and the apprenticeship program (Georgia Department of Education 2017). Over 95 percent say the program has been highly beneficial to the company and that they would recommend the program to other companies. Participating companies also report good quality student performance in problem-solving and communication skills. Some major employers, including Frito-Lay in Houston County and Southwire in Carroll County report that apprentices contribute a great deal to their company's production while learning skills and variable work experience.

Georgia's youth apprenticeship program is now working with over 30 Career Academies. Such academies operate in fields ranging from health and finance to travel and construction. They are a natural partner to company-led apprenticeships because they already include classroom related instruction that can be linked to apprenticeships. Potentially, because a serious apprenticeship involves learning skills at the workplace at the employer's expense, the academies might be able to reduce the costs of teachers relative to a full-time student. If, for example, a high school student spent two days per week in a paid apprenticeship, the school should be able to save about 40 percent of direct teaching costs, though a smaller savings in such fixed costs as buildings and administrative support. Applying these funds to marketing, counseling, and oversight for youth apprenticeship should allow the academy or other school to stimulate employers to provide apprenticeship slots. Success in reaching employers will require talented, business friendly staff well-trained in business issues and apprenticeship.

Unfortunately, there is currently little research, evaluation, or follow-up on student apprentices. Only about 700 complete the high school component of their apprenticeship. Why do so few complete? What happens to completers and to non-completers, some of whom may have spent significant amounts of time in work-based learning? In addition, there has been no rigorous evaluation of the impact of apprenticeship participation on students in Georgia.

Moving Forward on Apprenticeship in Georgia

The evidence from international experience and from studies in selected states (including Georgia) suggests that a robust apprenticeship system can substantially increase the skills, earnings, employment, productivity, occupational pride, and the match between worker skills and occupational requirements of employers. At the same time, emphasizing apprenticeships can significantly lower the government spending on learning

marketable skills required for rewarding careers. There is a growing recognition on the need to broaden routes to career success and learning beyond school-based approaches.

The key questions are:

- What is the best long-term strategy for Georgia to build a large-scale, high quality apprenticeship system?
- What incremental steps can move Georgia toward achieving this long-term strategy?

Engaging the public and private sectors to coalesce around a long-term strategy is a good starting point. A 10-day trip to Switzerland led by the Governor of Colorado helped persuade business leaders, school officials, nonprofit groups, and government staff and elected officials of the great value of youth apprenticeship and of the feasibility of building such a system in Colorado. Since then, the Colorado private sector created a public-private entity, CareerWise Colorado to coordinate efforts to build a modern youth apprenticeship system that involves 20,000 youth by 2027. The initiative has generated political and private sector support, including employers, schools, nonprofits, and some foundations. But the program so far has created less than 200 apprenticeships and most are not part of the federal registered apprenticeship system.

From this perspective, Georgia has a huge head start in terms of numbers, with about 7,000 youth apprentices. While employer satisfaction with youth apprentices is high, completion rates are low and the numbers of apprentices pursuing careers in the same field as their apprenticeship is unknown but probably low. Still, the concept of work-based learning and school coordinators to help high school students gain work experience is well-embedded in Georgia. In fact, there are over 300 coordinators (most part-time) in high schools associated with Georgia's youth apprenticeship system and only one federal and 2 state employees charged with expanding registered apprenticeship in Georgia.

Given these realities, Georgia is well-positioned to build a high quality, broad-based youth apprenticeship system, one that encompasses all the career clusters already established in the Georgia CTE system. A reasonable long-term goal would be to reach about one-third of a cohort, or about 35,000 students per age group, with high quality apprenticeship opportunities that prepare students for rewarding careers. This is a highly challenging goal, especially since achieving it requires substantial increases in scale and possibly quality as well. However, looked at from the numbers of Georgia's existing high school CTE concentrators (about 120,000), the goal seems achievable.

There are many advantages in emphasizing youth apprenticeship in Georgia. One is the current head-start in reaching sufficient employers to offer 7,000 apprenticeships. A second is the off-job courses linked to an apprenticeship are already funded by the public sector, thereby lowering how much firms and apprentices must

spend to finance apprenticeships. Third, a cadre of existing counselors are already in the schools to support the youth apprenticeship efforts. Fourth, the pool of CTE concentrators is large, providing a pool of potential apprentices already focusing on career-focused learning in a range of already established career clusters. Fifth, since most youth expect to earn relatively low wages, the employer costs of apprenticeships at ages under 19 are relatively low. And finally, starting young people on an apprenticeship while they are still in high school can prevent the disengagement with schooling that young people often experience (Pittman 2012 and Halpern 2009).

One potential disadvantage of an emphasis on youth apprenticeship is the school system's control over the system. Educators typically measure their success in terms of academic test scores and college, downplaying occupational skills that lead to good-paying careers. A second potential problem is state laws that limit access to some jobs to students under age 18. Third, several steps are required to upgrade youth apprenticeships sufficiently to increase completion and insure that apprentices become qualified, skilled workers in specific occupational areas.

Building on Georgia's strengths and overcoming its challenges are likely to allow for a large-scale, high quality youth apprenticeship program. Implementing this strategy is likely to improve substantially the careers of youth by their early 20s and to increase long-term earnings through increased skills and productivity.

Given the current climate of renewed interest in apprenticeship, concerns about college debt and low college completion, skills gaps, and the high youth unemployment, policymakers have come to support initiatives to achieve a scaled up and high quality youth apprenticeship system.

Recommendations for Significantly Expanding Apprenticeship in Georgia

A research and policy initiative aimed at achieving this goal could include the following steps.

1. A research program to learn more about existing youth apprenticeships, CTE concentrators and the content of CTE pathways, employers of youth apprentices, youth apprentices and other students in work-based learning, and high school educators. The research could include analyses of costs and benefits of youth apprenticeships to employers.
2. An analysis of current youth apprenticeship occupational frameworks in several sectors to determine how close they are to meeting the standards required for a registered apprenticeship program as well as to preparing apprentices to meet industry credentials. The analysis would deal with both work-based and classroom-based components of apprenticeships.

3. Focus groups with employers, apprenticeship representatives at schools, and work-based learning coordinators to learn about the potential ability to upgrade youth apprenticeships and to incorporate more apprenticeships among high school students, especially those who are already CTE concentrators.
4. Develop and test a program to strengthen the expertise of school representatives and other workplace professionals in marketing apprenticeships to individual employers, organizing skill training based on existing or new frameworks, to coordinate various sources to help fund apprenticeships, and preparing appropriate written plans and agreements. This effort could include documenting the experiences of companies, maybe with professional videos, and developing peer networks of companies hiring apprentices. The initiative could draw upon the experience of Swiss-style apprenticeships and companies sponsoring apprentices in Switzerland and the U.S. , as documented in the October 2017 report published by the Swiss- American Chamber of Commerce, Accenture, GAN and ETH Zurich.
5. Developing a plan for linking data on current and future youth apprentices with other education and labor market data. Daniel Kreisman of Georgia State University already is working on a project on linking data on CTE concentrators and earnings.
6. Examining the funding gaps that limit the expansion of youth apprenticeship in Georgia. Consider supplementing the Georgia Youth Apprenticeship program with some of the Perkins Act funding.

Once this policy research on youth apprenticeship is complete, develop policy proposals aimed at scaling the program. Policy changes could include financial incentives for employers and for training companies to stimulate employers to offer apprenticeships. They could involve working with state and local government human resources units to develop youth apprenticeships in the public sector. Another potential policy is to make all funding aimed at preparing young people for careers accessible for apprenticeship programs. One natural source of existing funding is the Perkins Act. Critical to the scaling of youth apprenticeship will be bipartisan political support and high-level exposure for youth apprenticeship by the Governor, other high-level state and local officials, and business and other employers.

A Georgia youth apprenticeship initiative has great potential to raise the earnings options, skills, occupational status, and occupational pride of hundreds of thousands of Georgia youth. Success in this endeavor is likely to lower earnings inequality, raise productivity and reduce the skills gaps experienced by Georgia companies as well as attract companies from outside the state.

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Figures and Tables

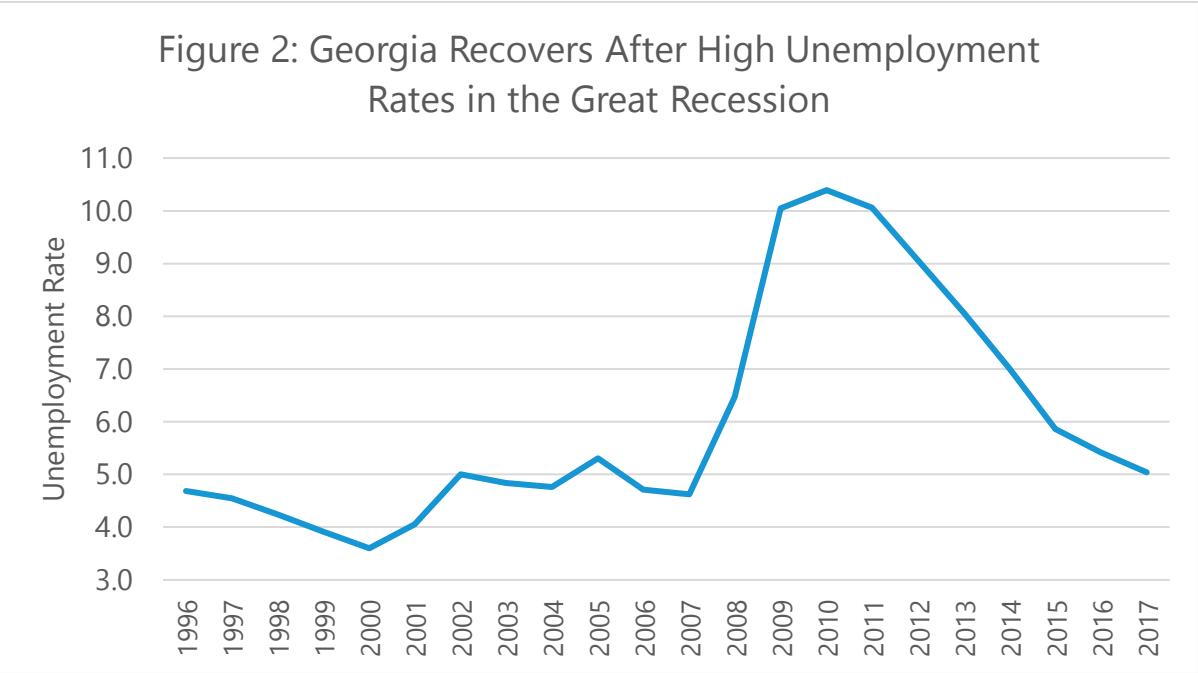
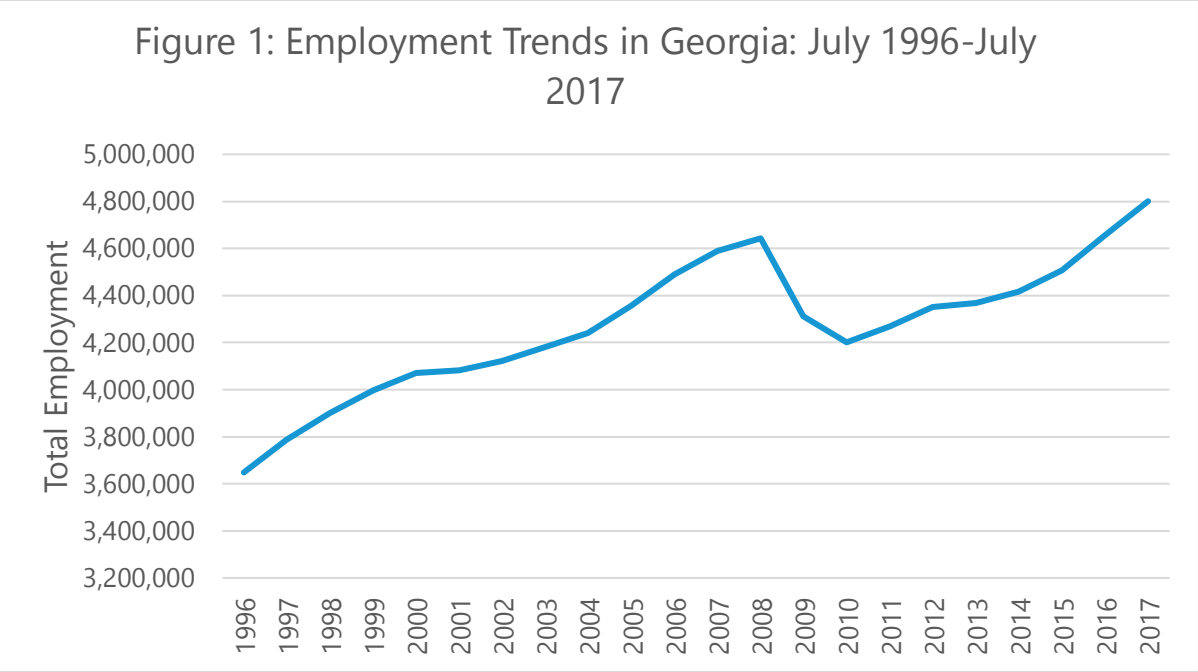


Figure 3: Jobless Rates Vary Widely by Age and Race Among Men: March 2016

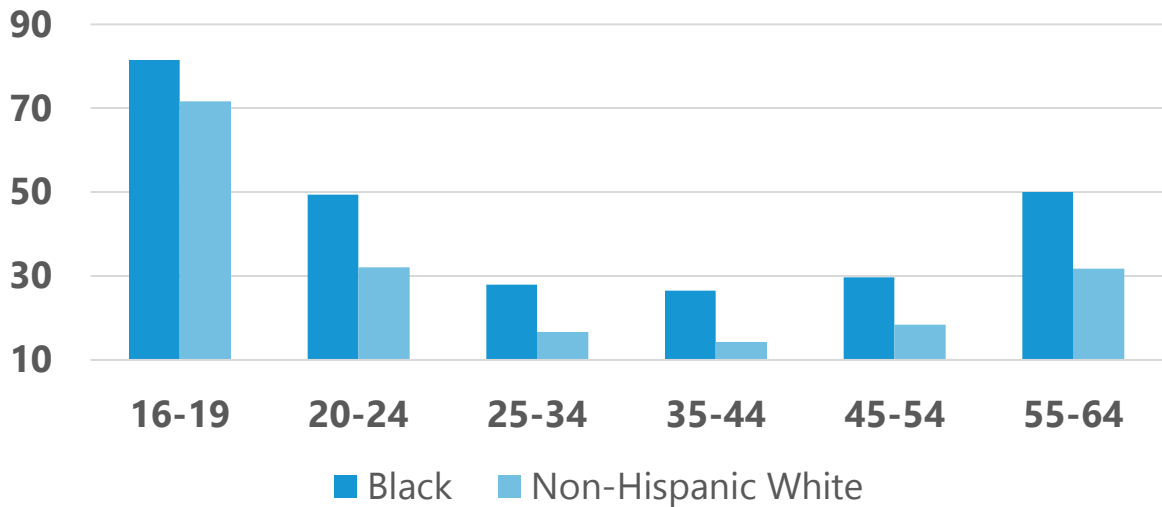


Figure 4: Joblessness Among Women Varies Widely by Age But Not by Race

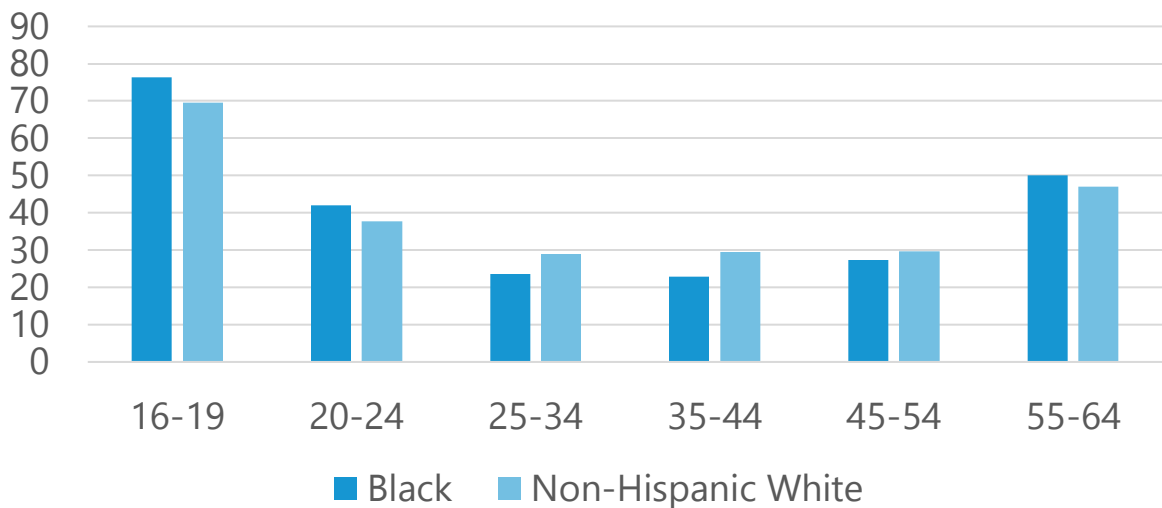


TABLE 1

Education and Employment of Georgia's 23-64-Year-Olds: 2015

	Number in population	Education share	Employed share
Did Not Complete High School	709,278	12.5	50.9
GED	270,081	4.8	56.6
High School Diploma	1,259,007	22.2	67.0
Some College	1,250,782	22.1	72.7
AA Degree	456,833	8.1	76.8
BA Degree	1,113,083	19.6	80.9
Graduate Degree	613,412	10.8	86.7
Total	5,672,476	100.0	71.4

Source: Tabulations from the American Community Survey: 2015.

TABLE 2

Education and Employment of Georgia's Male 23-64-Year-Olds: 2015

Educational attainment	Number	Education share	Employed share
Did Not Complete High School	393,789	14.3	59.7
GED	158,955	5.8	60.6
High School Diploma	658,240	23.9	73.5
Some College	582,758	21.2	78.6
AA Degree	186,716	6.8	81.4
BA Degree	510,346	18.5	86.8
Graduate Degree	263,241	9.6	91.3
Total	2,754,045	100.0	76.6

Source: Tabulations from the American Community Survey: 2015

TABLE 3

Education and Employment of Georgia's Black Male 23-64-Year-Olds: 2015

Educational attainment	Number	Education share	Employed share
Did Not Complete High School	122,291	14.7	39.7
GED	46,973	5.6	46.0
High School Diploma	252,468	30.3	65.2
Some College	195,279	23.5	74.4
AA Degree	57,884	7.0	76.1
BA Degree	111,744	13.4	83.5
Graduate Degree	45,861	5.5	89.6
Total	832,500	100.0	67.1

Source: Tabulations from the American Community Survey: 2015.

TABLE 4

Education and Employment of Georgia's Hispanic Male 23-64-Year-Olds: 2015

Educational Attainment	Number	Education share	Employed share
Did Not Complete High School	105,004	40.0	86.7
GED	10,144	3.9	77.0
High School Diploma	59,974	22.9	84.0
Some College	37,133	14.1	84.0
AA Degree	11,370	4.3	86.0
BA Degree	24,688	9.4	89.5
Graduate Degree	14,210	5.4	87.5
Total	262,523	100.0	85.6

Source: Tabulations from the American Community Survey: 2015

TABLE 5

Employed Share of Georgia's 23-64-Year-Olds by Marital Status, Race, and Sex

Marital status	Men		Women	
	Black	Non-Hispanic white	Black	Non-Hispanic white
Married, spouse present	81.7	86.9	70.6	65.6
Married, spouse absent	58.7	60.8	59.4	48.6
Separated	50.0	69.9	62.6	57.8
Divorced	60.9	66.6	70.8	67.4
Widowed	38.7	51.5	46.1	45.5
Never married/single	58.8	71.1	72.2	73.4
Total	66.9	79.3	69.8	66.1

Source: Tabulations from the American Community Survey: 2015

TABLE 6

Median and Mean Annual Earnings in Georgia of 23-64-Year-Olds Working at least 40 Weeks in the Prior Year by Sex in 2014

Educational attainment	Men		Women	
	Median	Mean	Median	Mean
Did Not Complete High School	\$25,000	\$31,713	\$18,000	\$21,842
High School Diploma	34,300	40,767	24,000	29,024
GED	31,500	38,731	22,500	26,781
Some College	40,000	48,727	28,000	33,091
AA Degree	42,000	49,638	32,000	37,735
BA Degree	63,000	85,788	43,200	53,314
Graduate Degree	85,000	120,549	56,000	67,187
Total	\$42,000	\$32,000	\$60,789	\$41,880

Source: Tabulations from the American Community Survey: 2015

TABLE 7

Overlap of Earnings Distributions of 23-64-Year-Old Men in Georgia Working at Least 40 Weeks in 2014

Educational attainment	20th	40th	60th	80th
LT High School	\$15,000	\$23,000	\$29,000	\$40,000
High School Diploma	20,000	29,500	40,000	55,000
GED	19,000	27,000	38,000	50,000
Some College	22,900	34,000	46,000	65,000
AA Degree	25,000	36,000	50,000	67,000
BA	35,000	51,000	75,000	114,000
Graduate Degree	50,000	72,000	100,000	150,000

Source: Tabulations from the American Community Survey: 2015

TABLE 8

Median Annual Earnings in Georgia of 23-64-Year-Olds Working at least 40 Weeks in the Prior Year by Sex in 2014 by Race and Sex: 2015

	Men		Women	
	White	Black	White	Black
Did Not Complete High School	\$30,000	\$24,000	\$19,000	\$15,000
High School Diploma	40,000	30,000	28,000	22,000
GED	35,000	25,000	23,000	19,700
Some College	44,000	35,000	30,000	25,000
AA Degree	47,900	37,000	35,000	30,000
BA Degree	70,000	45,000	45,000	40,000
Graduate Degree	93,000	65,000	57,000	55,000
Total	\$50,000	\$35,000	\$36,400	\$30,000

Source: Tabulations from the American Community Survey: 2015

TABLE 9

Multivariate Analysis of Factors Associated with Employment of Men in Georgia, Ages 30-54: 2015

	(1)	(2)	(3)
Age	0.0426	0.0334	0.0201
Age Squared	-0.0005	-0.0004	-0.0003
Black	-0.1851	-0.1419	-0.0920
Hispanic	0.0253	0.0894	0.0808
No HS Diploma or GED		-0.1968	-0.1693
GED		-0.1676	-0.1397
Some College		0.0340	0.0216
AA Degree		0.0460	0.0244
BA Degree		0.1332	0.1075
Graduate Degree		0.1455	0.1158
Married, Spouse Present			0.2072

Source: Probit estimates tabulated by author from the American Community Survey: 2015.

Note: All impacts are statistically significant.

TABLE 10

Multivariate Analysis of Factors Associated with Earnings of Men in Georgia, Ages 30-54, Working at Least 40 Weeks in 2014

	(1)	(2)	(3)
Age	0.1469	0.1402	0.1262
Age Squared	-0.0016	-0.0015	-0.0014
Black	-0.3900	-0.2780	-0.2413
Hispanic	-0.5731	-0.2726	-0.2721
No HS Diploma or GED		-0.2319	-0.2235
GED		-0.1509	-0.1395
Some College		0.2128	0.1990
AA Degree		0.2138	0.2021
BA Degree		0.6351	0.6096
Graduate Degree		0.8934	0.8551
Married, Spouse Present			0.2097

Source: Ordinary least squares regressions tabulated by author from the American Community Survey: 2015.

Note: All impacts are statistically significant.

TABLE 11

Education and Employment of Georgia's 23-28-Year-Olds: 2015

	Number	Education share	Employed share
Did Not Complete High School	94,423	11.1	47.4
GED	40,393	4.7	53.7
High School Diploma	179,623	21.0	68.6
Some College	244,804	28.6	75.7
AA Degree	67,024	7.8	81.4
BA Degree	188,261	22.0	83.2
Graduate Degree	40,151	4.7	89.6
Total	854,679	100	72.8

Source: Tabulations from the American Community Survey: 2015

TABLE 12

Education and Employment of Georgia's 23-28-Year-Old Men: 2015

	Number	Education share	Employed share
Did Not Complete High School	58,042	13.6	50.9
GED	26,156	6.1	58.5
High School Diploma	100,132	23.5	73.1
Some College	121,377	28.4	80.9
AA Degree	28,009	6.6	86.7
BA Degree	78,515	18.4	83.3
Graduate Degree	14,688	3.4	90.4
Total	426,919	100.0	74.8

Source: Tabulations from the American Community Survey: 2015

TABLE 13

Education and Employment of Georgia's 23-28-Year-Old Women: 2015

	Number	Education share	Employed share
Did Not Complete High School	36,381	8.5	41.9
GED	14,237	3.3	45.0
High School Diploma	79,491	18.6	63.0
Some College	123,427	28.9	70.7
AA Degree	39,015	9.1	77.6
BA Degree	109,746	25.7	83.1
Graduate Degree	25,463	6.0	89.2
Total	427,760	100.0	70.9

Source: Tabulations from the American Community Survey: 2015

TABLE 14

Percent of 23-34-Year-Olds Blacks in Georgia Who Worked at Least 40 Weeks in the Prior Year, by Education Attainment and Sex

Educational attainment	Men	Women
Did Not Complete High School	41.7	36.3
GED	36.7	47.5
High School Diploma	58.0	60.1
Some College	73.3	67.0
AA Degree	72.1	73.8
BA Degree	84.8	74.3
Graduate Degree	78.3	83.0
Total	63.3	65.6

Source: Tabulations from the American Community Survey: 2015

TABLE 15

Employment Status of Georgia's 23-28-Year-Olds by Workforce Area

Workforce investment area	Percent of 23-28-Year-Olds Who Were		
	Employed	Unemployed	Not in labor force
Northwest Georgia	78.3	3.8	17.9
Georgia Mountains	71.3	6.1	22.6
Cobb	80.5	5.6	14.0
Atlanta Regional	75.0	5.7	19.4
West Central Georgia	73.1	10.5	16.5
Northeast Georgia	82.2	1.5	16.3
Macon-Bibb	68.0	5.7	26.3
Central Savannah River	70.4	6.4	23.2
East Central Georgia	79.2	16.6	4.2
Southern Georgia	70.5	8.2	21.3
Coastal Region	75.1	9.1	15.9
Total	75.6	6.4	18.1

TABLE 16

Employment Status of Georgia's 23-28-Year-Old Males by Workforce Area

Workforce investment area	Percent of 23-28-Year-Olds Who Were		
	Employed	Unemployed	Not in labor force
Northwest Georgia	78.4	3.9	17.7
Georgia Mountains	66.7	9.1	24.1
Cobb	78.6	6.3	15.1
Atlanta Regional	74.4	5.3	20.3
West Central Georgia	79.1	6.1	14.8
Northeast Georgia	81.5	1.7	16.8
Macon-Bibb	72.3	1.4	26.4
Central Savannah River	64.4	7.9	27.7
East Central Georgia	76.4	21.3	2.3
Southern Georgia	61.9	10.2	28.0
Coastal Region	77.2	6.9	15.8
Total	74.8	6.4	18.8

TABLE 17

Employment Levels, Annual Rates of Job Growth by Workforce Investment Board Area

Workforce Investment Board	2016 Q2	Annual job growth, 2006-2016	Annual job growth, 2012-2016
Georgia	4,153,709	0.6 percent	2.7 percent
01 Northwest Georgia WIB	257,630	-0.4 percent	2.4 percent
02 Georgia Mountains WIB	240,665	1.5 percent	3.6 percent
03 City of Atlanta WIB	442,025	0.1 percent	1.5 percent
04 Cobb County WIB	379,383	1.3 percent	3.6 percent
05 DeKalb County WIB	306,794	0.1 percent	2.1 percent
06 Fulton County WIB	386,978	1.7 percent	4.1 percent
07 Atlanta Regional WIB	703,093	0.8 percent	3.5 percent
08 West Central WIB	162,248	0.2 percent	2.4 percent
09 Northeast WIB	197,332	1.3 percent	4.0 percent
10 Macon-Bibb WIB	84,040	0.7 percent	0.9 percent
11 Middle Georgia WIB	95,890	0.5 percent	2.0 percent
12 Richmond/Burke WIB	110,430	0.6 percent	3.0 percent
13 East Central Georgia WIB	62,919	0.2 percent	2.5 percent
14 Lower Chattahoochee WIB	98,681	-0.4 percent	0.8 percent
15 Middle Flint WIB	29,490	-0.9 percent	1.6 percent
16 Heart of Georgia/Altamaha WIB	86,023	-0.2 percent	1.1 percent
17 Southwest Georgia WIB	121,465	-0.4 percent	-0.1 percent
18 South Georgia WIB	86,062	-0.2 percent	1.5 percent
19 Southeast Georgia WIB	52,906	0.2 percent	2.5 percent
20 Coastal WIB	249,655	0.9 percent	3.0 percent

Source: QWI Explorer (U.S. Census) based on unemployment insurance records.

TABLE 18

Average Earnings in the First Quarter of 2016 and Annual Quarterly Earnings Growth by Workforce Investment Board Area

Workforce Investment Board	2016 Q2 mean earnings	Nominal growth in earnings 2006-2016	Nominal growth in earnings, 2012-2016
Georgia	\$4,381	2.0 percent	1.6 percent
01 Northwest Georgia WIB	3,300	1.7 percent	2.0 percent
02 Georgia Mountains WIB	3,575	1.5 percent	1.4 percent
03 City of Atlanta WIB	6,754	3.2 percent	1.2 percent
04 Cobb County WIB	5,131	2.1 percent	1.5 percent
05 DeKalb County WIB	4,830	2.0 percent	2.0 percent
06 Fulton County WIB	6,401	2.2 percent	1.9 percent
07 Atlanta Regional WIB	3,991	0.9 percent	1.4 percent
08 West Central WIB	3,348	1.6 percent	1.3 percent
09 Northeast WIB	3,499	1.8 percent	2.7 percent
10 Macon-Bibb WIB	3,599	1.2 percent	0.9 percent
11 Middle Georgia WIB	3,003	1.0 percent	0.6 percent
12 Richmond/Burke WIB	3,807	2.1 percent	1.2 percent
13 East Central Georgia WIB	2,967	0.9 percent	2.0 percent
14 Lower Chattahoochee WIB	3,689	2.3 percent	2.1 percent
15 Middle Flint WIB	2,864	2.1 percent	1.5 percent
16 Heart of Georgia/Altamaha WIB	2,997	1.9 percent	2.0 percent
17 Southwest Georgia WIB	3,143	1.6 percent	1.2 percent
18 South Georgia WIB	2,833	1.7 percent	0.8 percent
19 Southeast Georgia WIB	2,852	1.9 percent	1.8 percent
20 Coastal WIB	3,415	1.7 percent	1.1 percent

Source: QWI Explorer (U.S. Census) based on unemployment insurance records.

TABLE 19

Employment and Earnings in Georgia by Occupation, May 2015

Occupational group	Total employment	Median earnings	Earnings, 25th percentile	75:25 ratio of earnings
Architecture and Engineering Occupations	62,780	\$73,450	\$54,130	1.81
Arts, Design, Entertainment, Sports, and Media Occupations	50,920	45,150	29,140	2.25
Building and Grounds Cleaning and Maintenance Occupations	113,760	22,550	18,590	1.57
Business and Financial Operations Occupations	228,270	63,140	45,930	1.87
Community and Social Service Occupations	44,750	39,780	30,620	1.85
Computer and Mathematical Occupations	138,140	80,990	57,480	1.87
Construction and Extraction Occupations	138,550	36,830	28,190	1.77
Education, Training, and Library Occupations	261,120	46,810	26,650	2.32
Farming, Fishing, and Forestry Occupations	9,970	24,130	19,190	1.82
Food Preparation and Serving Related Occupations	396,350	18,690	17,120	1.28
Healthcare Practitioners and Technical Occupations	236,230	58,730	40,230	1.99
Healthcare Support Occupations	99,430	25,830	21,120	1.59
Installation, Maintenance, and Repair Occupations	176,400	41,100	30,130	1.87
Legal Occupations	29,320	72,380	49,980	2.53
Life, Physical, and Social Science Occupations	21,500	56,760	41,970	1.88
Management Occupations	240,090	98,170	65,080	2.20
Office and Administrative Support Occupations	653,730	32,040	24,530	1.74
Personal Care and Service Occupations	89,520	20,380	17,880	1.49
Production Occupations	303,830	30,040	22,920	1.73
Protective Service Occupations	104,400	33,860	25,740	1.70
Sales and Related Occupations	457,850	24,650	18,730	2.37
Transportation and Material Moving Occupations	357,480	28,600	21,110	1.93
Total	4,214,390	\$34,330	\$22,120	2.56

Source: U.S. Bureau of Labor Statistics, tabulations from Occupational Employment and Wage Estimates.

TABLE 20

CTE Concentrators and Postsecondary Majors by Career Cluster in Georgia: 2015

Career Cluster	Secondary enrollment	Postsecondary enrollment	Total enrollment
Agriculture, Food, and Natural Resources	11,402	646	12,048
Architecture and Construction	5,053	4,429	9,482
Arts, Audio Visual, and Communications	5,573	1,417	6,990
Business, Management, and Administration	14,042	15,699	29,741
Education and Training	3,123	10	3,133
Finance	8,192	99	8,291
Government and Public Administration	12,462	0	12,462
Health Science	12,760	30,209	42,969
Hospitality and Tourism	4,383	1,967	6,350
Human Services	14,216	9,761	23,977
Information Technology	6,616	6,519	13,135
Law, Public Safety, Corrections, and Security	3,832	5,540	9,372
Manufacturing	2,307	5,785	8,092
Marketing, Sales, and Service	5,600	1,371	6,971
Science, Technology, Engineering, and Math	6,534	1,468	8,002
Transportation, Distribution, and Logistics	3,757	6,136	9,893
Total	119,852	91,056	210,908

Source: Georgia Department of Education.

TABLE 21

Educational Attainment by Individual Year of Age and Sex: 2015

Age, Sex	Less than high school	GED	High school diploma	Some college	AA degree	BA degree	Graduate degree
All	Highest Grade/Degree Attainment as a Percent of Each Age Group						
21	8.8	2.8	28.3	52.6	5.1	2.5	-
22	10.4	5.1	25.5	42.0	5.9	10.9	0.1
23	10.5	4.4	24.0	33.7	8.0	18.4	1.0
24	9.4	4.9	22.9	32.8	6.7	21.2	2.0
25	9.2	4.1	21.1	28.6	8.8	23.9	4.2
26	11.9	5.2	18.7	26.5	6.7	24.6	6.5
27	12.4	5.5	19.1	26.2	9.1	20.7	6.9
28	12.8	4.3	20.2	23.8	7.6	23.5	7.8
Men							
21	10.3	4.5	32.7	45.5	4.4	2.8	-
22	11.8	7.7	31.0	37.3	5.5	6.7	-
23	13.2	5.6	26.0	32.8	7.3	14.4	0.7
24	11.4	6.0	22.5	34.1	7.2	17.8	0.9
25	11.1	5.2	25.5	28.3	6.6	20.0	3.2
26	16.1	7.0	21.8	24.6	5.8	19.3	5.3
27	13.9	7.8	21.4	25.7	7.0	18.5	5.6
28	16.0	5.1	23.5	25.1	5.2	20.4	4.9
Women							
21	7.3	1.1	23.9	59.8	5.8	2.2	-
22	8.9	2.3	19.5	47.1	6.5	15.6	0.1
23	8.0	3.2	22.1	34.6	8.6	22.2	1.2
24	7.4	3.7	23.3	31.5	6.2	24.8	3.1
25	7.4	3.0	16.8	28.9	11.0	27.8	5.1
26	7.3	3.2	15.3	28.5	7.6	30.3	7.7
27	11.0	3.2	16.9	26.7	11.2	22.8	8.2
28	9.8	3.6	17.1	22.7	9.8	26.5	10.5

Source: Tabulations by author from the 2015 American Community Survey

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