ADVANCING GEORGIA'S ECONOMIC FUTURE
THROUGH POSTSECONDARY EDUCATION

The Power of Potential

A Report to the Bill & Melinda Gates Foundation
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Contents

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Advancing Georgia's Economic Future
Through Postsecondary Education

Introduction

There is broad agreement that the key to economic growth and prosperity is the availability of a well-trained and productive workforce. In concert with a quality system of elementary and secondary education, postsecondary education is the primary path to achieving this goal. In Georgia the critical nature of this relationship was formally recognized with the enactment of the 2011 Complete College Georgia initiative by former Governor Nathan Deal, in partnership with the University System of Georgia and the Technical College System of Georgia. The initiative envisions that by 2025, in order to meet state workforce needs, 60 percent of Georgia's adults will need to have a postsecondary credential (GOSA, 2012).[1]

So, it is important to understand the role that postsecondary education plays in the creation of a qualified workforce. Georgia is a "pro-business" state and economic growth is a central priority. Since a qualified workforce is a well-trained one, college completion and greater investment in postsecondary education are essential.

The relationship between postsecondary attainment and higher earnings is well established. But somehow the dots have not been connected between higher earnings for individuals and economic growth and prosperity for the general population. How can it be explained that even with economic growth such a top priority, public financial support for postsecondary education has declined so sharply?

In recent years, postsecondary education in the United States has been criticized sharply. Higher education has been under intense scrutiny. Increasing tuition rates, rising student debt, and an ever-changing economy have led many to question the value of higher education. Many of the sharpest critiques focus on higher education's role in preparing graduates for the workforce, especially in the years following the 2008 recession when unemployment and underemployment were widespread and college graduates struggled to find jobs (Abel and Deitz, 2016; Cunningham, 2018; James and Vecchio, 2013). Meanwhile, the concept of "student success" has been extended from "success in college" to "success during and after college," and institutions are increasingly focused on how to structure their programs to promote their students' post-college success.

Within this context, stakeholders are concerned that colleges and technical schools are not preparing graduates for in-demand jobs; a phenomenon referred to as the "skills gap". While these concerns blame postsecondary institutions for not keeping pace with workforce demands and for not adequately training students (Hora, Benbow, and Oleson, 2016; Landrum, 2017; Richard, 2015), the existence of the skills gap also directly relates to issues such as access and degree attainment not keeping up with the growing labor market or its increasing demands.

Concern about the skills gap may help in understanding why public investment in postsecondary education has waned. If the system is not producing the right kinds of workers and/or not producing them in sufficient numbers, the responsibility for lagging economic growth can easily fall on the postsecondary education system.

But strong evidence exists that postsecondary attainment brings about both higher earnings and student development across a variety of important areas, including employment outcomes and career transition (Arum and Roksa, 2014; Mayhew, Rockenbach, Bowman, Seifert, and Wolniak, 2016). Rigorous empirical studies show that today's college students are retaining what they are taught, becoming more

[1] The term "College Completion" is limiting. This paper will use the term "postsecondary education" to include colleges and universities as well as technical schools and other institutions where study can lead to associate degrees and certificates.

critical thinkers with a sharper sense of vocational identity and career efficacy during college, and are more likely to secure gainful employment and higher earnings after they graduate (Mayhew et al., 2016).

Taking these results into account leads directly to the conclusion that skills gaps do not result solely from postsecondary institutions failing to properly educate and train students. Skills gaps may, in fact, also be the result of fewer students making their way into and through the postsecondary system, while at the same time doing so in areas that are not well-aligned the most in-demand jobs.

To advance policy perspectives and, more importantly, to make the case about postsecondary access and completion more concrete for Georgia's business leaders who have significant influence over policy makers, we must convey what we know about the career and economic effects of postsecondary education in a way that is both accessible and actionable to stakeholders in business and public policy. So, it is necessary to focus on both access and the specific types of credentials students are attaining—and the quality of these credentials—to drive important conversations that tie postsecondary education credentials to the needs of the workforce nationally and locally.

The Georgia Context

The College Completion Agenda goal, announced by Governor Deal in 2011, centered on 60 percent of Georgia's adult population having attained an associate degree or higher, or a credential linked to rewarding career (GOSA, 2012). This 60 percent goal has since become the measuring stick for postsecondary education's contribution to Georgia's economic welfare.

Our own analyses, however, suggests that Georgia currently is not on track to meet this goal or to more generally satisfy employers' demand for skilled workers. If Georgia does not have enough qualified workers available, economic growth in the state will fall short of its potential. Simply put, Georgia's economic future is at stake.

Report Aims

This report articulates the impact of postsecondary attainment on the workforce by reviewing and summarizing existing empirical evidence and underlying data relating postsecondary degrees and credentials to career and economic outcomes in the U.S., and specifically in Georgia. In so doing, we offer a framework to guide future policy conversations and decision-making on this critical issue.

In the sections that follow, we summarize what we know about the career and economic returns to postsecondary attainment, and we present new empirical evidence on postsecondary education and workforce trends in Georgia. We conclude with a set of recommendations for education and workforce policymakers in the state.

Making the Case

Postsecondary Education: A Vital Investment

Education after high school is a vital investment for students, for employers, and for the state. In fact, evidence indicates that the returns from postsecondary education are on the rise. What we know about the return on postsecondary education investments focuses on the relationship between students and workforce or economic outcomes. But while each of these measurements of returns is important, not all groups experience the same returns from postsecondary education, so it is important to distinguish which group is getting what return. Ultimately, the returns from postsecondary education are tied to individual students, the public domain (the state and nation), and employers.

From the student and public perspectives, returns on postsecondary education investments are substantial (Mayhew et al., 2016; McMahon, 2009; Toutkoushian and Paulsen, 2016). This section summarizes the importance of postsecondary attainment for students and for employers, focusing on evidence from national studies and newly developed evidence specific to Georgia.

For Students

This report presents for the first time, valuable information on the lifetime earnings estimates for various degrees of postsecondary attainment, including Georgia-specific estimates. These estimates were developed by the University of Georgia's Selig Center for Economic Growth in the Terry College of Business. Additional Selig Center data in support of this report is provided in the appendix.

For students, the most striking examples center on the increase in work-related earnings associated with different levels of postsecondary completion. Based on U.S.-level data from the 2013-2017 American Community Survey, we estimate that over the course of a 40-year career (see Exhibit 1), the median lifetime earnings are estimated at $1.9 million for completing an associate degree (a 28 percent increase over completing no more than a high school diploma), and $2.6 million for completing a bachelor's degree (an additional 39 percent increase over an associate degree). Furthermore, under the same assumptions, those who complete a graduate or professional degree earn over their working lifetime from $3.1 million for a master's degree, to $3.8 million for doctorates, and to $4.5 million for professional degrees—16 percent, 44 percent, and 70 percent increases over a bachelor's degree, respectively.[2]

Compared to U.S. figures based on data collected several years earlier (Carnevale, Rose, and Cheah, 2014), the earnings associated with postsecondary attainment at the bachelor's level and above are increasing.[3] For example, relative to attaining no more than a high school diploma, individuals who complete a bachelor's degree earned 78 percent more over their lifetimes, up from 74 percent several years earlier. Moreover, relative to completing an associate degree, a bachelor's degree increased lifetime earnings by 39 percent, up from 31 percent estimated years earlier.

A different trend exists nationally for associate degrees, however, indicating declines in the earnings advantages relative to a high school diploma. Whereas the most recent estimates indicate a 28 percent increase in lifetime earnings for an associate degree, earlier estimates yielded a 33 percent lifetime earnings premium. Together, these national statistics suggest that increases in labor market demand is concentrated in sectors that rely on workers with bachelor's degrees, putting upward pressure on earnings for those individuals.

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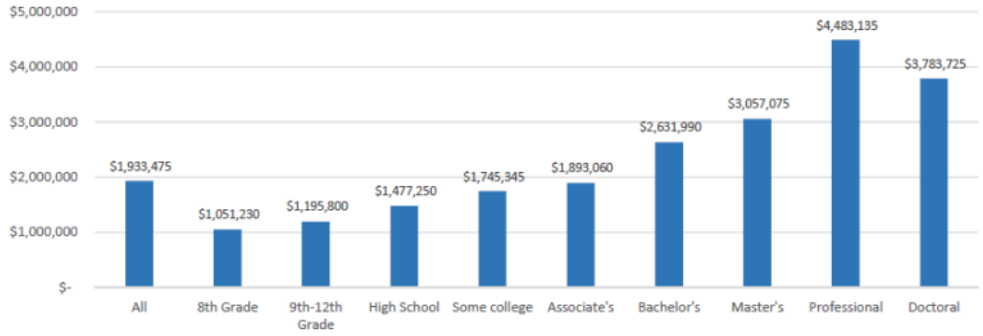
[2] Estimates were generated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia, based on U.S. Census Bureau, American Community Survey, 2013-2017 5-Year Public Use Microdata Sample; IPUMS USA, University of Minnesota.

[3] Estimates generated for "The College Payoff" are based on U.S. Census Bureau data and methodology similar to the estimates by the Selig Center. Carnevale estimates are presented in 2009 dollars.

Exhibit 1. Synthetic Lifetime Earnings in the U.S. (2017 dollars)



Source: Selig Center for Economic Growth. Synthetic Lifetime Earnings based on median incomes, from 2013-2017 ACS 5-Year Estimates.

Turning attention to Georgia, the Selig Center's estimates generally mirror national trends, but where the lifetime earnings benefits of attaining associate and bachelor's degrees exceed U.S. averages, the opposite is true for graduate and professional degrees (see Exhibit 2). In Georgia, the work-life earnings of individuals with an associate degree will be $407,205 more than for those with a high school diploma; a similar though slightly larger percentage increase in work-life earnings in Georgia (30 percent) than in the U.S. as a whole (28 percent). For bachelor's degree holders, lifetime earnings will be $1,188,320 more than for those with a high school diploma (an 88 percent increase), which exceeds the $1,154,740 incremental benefit (a 78 percent increase) estimated for the U.S.

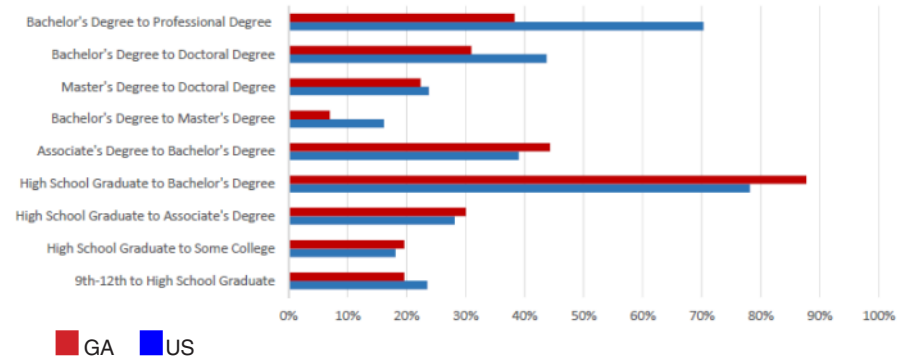
In Georgia, the estimated payoff for persons who go to graduate school is positive, but smaller than estimated for the U.S. For example, Georgians who earn a master's degree will boost their work-life earnings by $178,045 (up 7 percent) over a bachelor's degree, which is considerably smaller than the $425,085 (16 percent) increase estimated for the U.S. as a whole. Additional work-life earnings for Georgians who earn a professional degree is $975,265 (a 38 percent increase) over a bachelor's degree. For the nation, the payoff from a professional degree is almost twice as large at $1,851,145 (70 percent). In terms of doctoral degree completion, in Georgia, the increase in work-life earnings relative to a bachelor's degree is $787,865 (a 31 percent increase); for the U.S. as a whole, the estimated payoff is $1,151,735 (a 44 percent increase). Altogether, these figures suggest higher demand for workers with associate and bachelor's degrees in Georgia, relative to the U.S. as a whole.

While the foregoing estimates focus on population averages, it is important to recognize that work-life earnings benefits associated with postsecondary attainment differ by individuals' racial/ethnic identities. In Georgia, while estimated payoffs in terms of work-life earnings are substantial for both Hispanics and non-Hispanics, the payoffs are generally lower for Hispanics than for non-Hispanics at every level of educational attainment. One very compelling finding is that Hispanics with a bachelor's degree or an associate degree obtain a larger payoff in Georgia than in the nation as a whole.

A different trend exists between blacks and whites. The estimated payoff in terms of work-life earnings show that both races benefit from higher education, but the payoff is lower for blacks at every level of educational attainment. This finding holds true for both Georgia and the U.S. The highest level of income disparity is among those with a bachelor's degree. In Georgia, the lifetime earnings gap between whites and blacks with a bachelor's degree is 38 percent; in the U.S., it is 27 percent.

Although the Selig Center's analysis and the other referenced studies focus solely on earnings and do not consider the cost of higher education, a similar theme appears from

Exhibit 2. Lifetime Earnings in Georgia vs. the U.S. Across Steps in Educational Attainment (2017 dollars)



Source: Selig Center for Economic Growth. Synthetic Lifetime Earnings based on median incomes, from 2013-2017 ACS 5-Year Estimates.

studies that account for the total cost of varying levels of education (direct costs like tuition and fees, as well as indirect cost like foregone earnings during time spent in college). Altogether, evidence from across several studies point to an average rate of return of 12 to 14 percent for a bachelor's degree to as high as 15 to 20 percent for attending a lower cost public institution (Heckman, Lochner, and Todd, 2008; Paulsen and Smart 2001, Toutkoushian and Paulsen, 2016; Menon, 2003; Psacharopoulos and Patrinos, 2004; Toutkoushian, Jajeef Shafiq, and Trivette, 2013.) When compared to similar calculations published in the 1990s and 2000s, we find the returns on postsecondary education to be higher than in the past (Mayhew et al., 2016.)

Majors Matter

What these statistics do not capture, however, is the substantial variation in earnings that result from students' choices during college, especially students' major field of study. In fact, the earnings differences associated with one's major field outweigh the earnings differences associated with any other aspect of postsecondary education, including the type of institution attended or degree attained (Carnevale and Cheah, 2018; Mayhew et al., 2016).

After taking into account a host of individual background and institutional differences, national reports consistently indicate the highest earnings result from majoring in fields that have a well-defined body of content knowledge, focus on quantitative and/or scientific skills development, and have a direct functional link to occupations. Studies show that the majors that generate the highest earnings include engineering, computer science and information technology, mathematics, and health sciences (Altonji, Blom, and Meghir, 2012; Del Rossi and Hersch, 2008; Hu and Wolniak, 2010; Melguizo and Wolniak, 2012; Robst, 2007; Thomas, 2003; Thomas and Zhang, 2005; Wolniak and Pascarella, 2005; Wolniak et al., 2008; Zhang, 2008; Zhang and Thomas, 2005). In the middle of the earnings distribution are Public Affairs, Biological Sciences, and Social Sciences[4]

[4] In terms of magnitude, across numerous studies (Bellas, 2001; Del Rossi and Hersch, 2008; Robst, 2007; Thomas, 2003; Wolniak et al., 2008; Zhang, 2008; Zhang and Thomas, 2005), the net effects on earnings of majoring in Engineering, Computer Science and Information Technology (versus Education) is 40–50 percent. Estimates further indicate 30–36 percent higher earnings resulting from majoring in Business (versus Education) and 28–46 percent from Science and Math (versus Education). The literature presents substantial variation in the earnings effects of Health or Health Sciences, ranging from 25–56 percent over an Education major, where such a large variation across estimates is likely due to the different sub-fields that researchers have chosen to include in this broad category. Studies that have grouped majors into an overarching STEM category demonstrate that such majors yield as high as 35 percent greater earnings within the first few years following college graduation, relative to fields such as Education and Humanities (Melguizo and Wolniak, 2012; Zhang, 2008).

Furthermore, the greatest earnings are tied to majoring in a high earning field and working in a closely related job (Melguizo and Wolniak, 2012; Neumann, Olitsky, and Robbins, 2009; Robst, 2007). It appears that congruence serves as a mechanism through which college major and career orientations influence earnings, highlighting the important roles higher education institutions can play in assisting students in their efforts to obtain a job in areas closely related to their majors.[5]

In Georgia, the High Demand Career Initiative (HDCI) launched in 2014 brought together the Georgia Department of Economic Development, the University System of Georgia, the Technical College System of Georgia, and key industry leaders to identify high demand careers—potential skills gaps—as well as future workforce needs. Drawing on original work conducted by the Carl Vinson Institute of Government at the University of Georgia, the HDCI collaboration hosted 13 meetings across the state that involved 80 private sector companies to better understand workforce needs. The 2014 report (Wilson, Epps, Tanner, Gordon, and Sigler, 2014) identified 162 high-demand careers and 96 high-demand skills.

Complementing the earnings premiums that national reports have tied to certain college majors, the HDCI highlighted the high-demand careers most frequently cited across industries in Georgia. These include engineers, welders, machinists, computer numerical control operators, programmable logic controllers, software developers, business support roles (e.g., accounting), computer programmers, maintenance technicians, and manufacturing associates. The report also noted that employers are interested in filling their openings with in-state talent but often are forced to recruit from out-of-state. This concern was expressed across many industries but was most acutely tied to those industries requiring skilled workers in manufacturing and entertainment (television and film production).

Postsecondary Access and Attainment

While evidence clearly indicates the economic advantages that accrue to students with postsecondary degrees in specific fields, and who are located where labor demand is most concentrated, it does not provide insight on the trends in postsecondary access or attainment. In this regard, data from 2018 show that, among U.S. individuals 25 years and older, 28.5 percent only have a high school diploma, 10.2 percent an associate degree, 21.9 percent a bachelor's degree, and 13.1 percent a graduate or professional degree (U.S. Census, 2018).

Attainment rates in Georgia closely mirror the nation: 27.8 percent have a high school diploma, 8.1 percent an associate degree, 19.5 percent a bachelor's degree, and 12.3 percent a graduate or professional degree. Looking at percentages of individuals with bachelor's degrees or higher, Georgia lags somewhat behind the nation: 31.8 percent versus 35 percent (Duffin, 2019).

The Lumina Foundation presents a somewhat different view by measuring postsecondary attainment among persons 25 years and older with associate degrees and higher, as well as those with "high quality" credentials.[6] Based on this more inclusive definition of postsecondary attainment, Lumina reported a 49.6 percent rate for Georgia, slightly higher than the 47.6 percent for the U.S. (Lumina, 2019). The Lumina figure is also somewhat higher than the 47.9 percent figure most recently reported by College Completion Agenda

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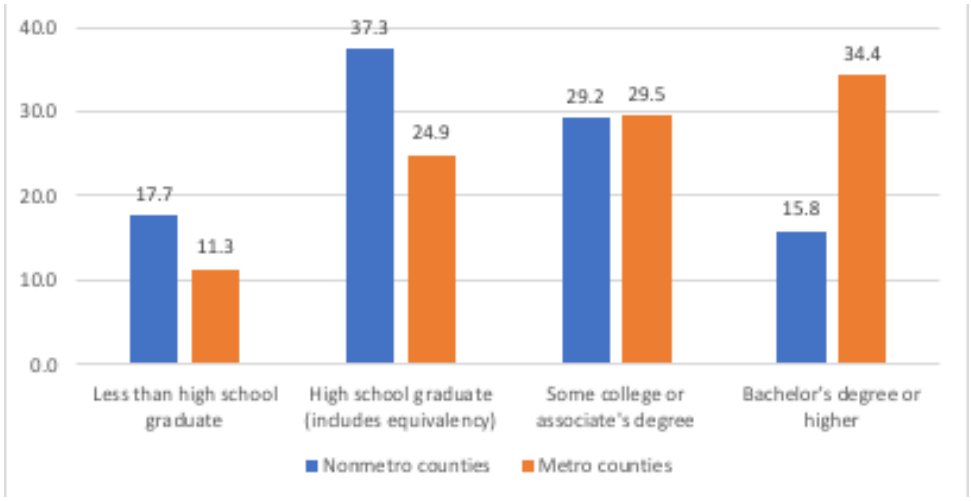
[5] A related and important point is that while such earnings advantages are notable and important to consider, students don't realize the economic benefits of postsecondary attainment if they struggle to secure employment. Adding context to our understanding of the return on investments in higher education is evidence on students' likelihood of being employed following college. In this regard, studies show that completing additional years of higher education significantly increase the odds of employment initially after college and continue to increase for many years later following college (Long, 2010). Furthermore, students who concentrate their studies in certain fields – particularly business-related fields – appear to work more hours (Zhang, 2008), and students who studied fields in more specific or applied areas – particularly STEM fields – have the greatest likelihood of working in a job closely matched their field of study (Melguizo and Wolniak, 2012; Neumann et al., 2009; Robst, 2007). There is little evidence that the selectivity of undergraduate institution attended influences subsequent employment above and beyond the amount of education completed and one's field of study.

[6] The Lumina Foundation defines a high-quality credential as a credential "with clear and transparent learning outcomes leading to further education and employment" (Lumina Foundation, 2019). Similarly, the Council of Chief State School Officers, a nonprofit organization of public elementary and secondary school officials, defines high-value credentials as those credentials that "reliably put students on a strong, sustainable, and financially rewarding career path" (CCSSO, 2018, p. 9). Both sources indicate that measures of quality or value are typically evaluated on a state or regional level, on a biannual basis through an extensive review of a credential's labor market demand and participation data.

Exhibit 3. Educational Attainment of the Population 25-64, Georgia's Nonmetropolitan and Metropolitan Counties, 2013-2017



Source: Selig Center for Economic Growth, Terry College of Business, The University of Georgia, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Sample.

program. Regardless of the specific calculations, Georgia is well short of its official 2025 postsecondary attainment goal.

Turning attention to postsecondary access, as reflected by the percentage of 18-to-24-year-olds enrolled in postsecondary education, statistics from 2015 show 35.6 percent for the nation versus 30.9 percent in Georgia (NCHEMS, 2016). In terms of rates of postsecondary enrollment immediately following high school, Georgia is in close alignment with the nation: 63.6 percent in Georgia versus 62.6 percent for the U.S. From a broader view, however, rates of immediate college enrollment are dropping in Georgia, from an historic high in 2008 of 69.6 percent versus 63.6 percent for the nation.

Together these statistics suggest a problematic downward trend in immediate postsecondary enrollment in Georgia which, in the years to come, will work against the state's attainment goal and further fuel a labor market shortage of individuals with the level of education most demanded by employers. Projections show that most of the fastest growing occupations require an associate degree or higher. The Georgia Department of Labor (2018a, 2018b) highlights the challenges this creates, where many Georgia businesses have openings, but have difficulty finding skilled workers to hire. Between 2016 and 2026, employment in entry-level jobs that typically require a bachelor's degree or higher will increase by 14.8 percent compared to a 9.6 percent growth for jobs that only require a high school diploma or its equivalent.[7]

Another factor holding Georgia back is the underutilization of postsecondary education by rural residents. According to the Selig Center's analysis of 2017 data from the American Community Survey (5-Year Sample) 15.8 percent of Georgia's rural population aged 25 to 64 had a bachelor's degree or higher compared to 34.4 percent of the population of metropolitan areas. The county-level analysis not only shows that postsecondary education attainment is much lower in rural (nonmetropolitan) counties than in metropolitan ones, but that the variation is extreme. For example, over 53 percent of metropolitan Forsyth County's work-

[7] Estimates were generated by the Selig Center for Economic Growth, Terry College of Business, The University of Georgia, based on long-term employment projections for nearly 800 occupations prepared by the Georgia Department of Labor's Economic Research Division (GDOL, 2018b).

ing age adults have a bachelor's degree or higher compared to less than six percent in rural Quitman County. Indeed, the percentage of the population with a bachelor's degree of higher does not exceed the statewide average (31.3 percent) in any rural county. The percentage of adults ages 25-64 with a bachelor's degree or higher is less than 10 percent in 22 counties, 16 of which are rural. Moreover, no rural county ranks among the top 15 counties in terms of the percent of the adults ages 25-64 with a bachelor's degree of higher.

For Georgia to make substantial progress raising the state's overall level of educational attainment, it needs policies to reduce this urban versus rural disparity (see Exhibit 3). The November 2019 report by the Rural School and Community Trust highlights that the growing rural population in Georgia, combined with academic gaps among the state's rural students in poverty, has contributed to a "dire" college-readiness problem (Showalter, Hartman, Johnson, and Klein, 2019). These issues led the authors to rank Georgia among the nation's top ten in terms of the need for improvement in rural education.

In addition, current demographic trends in Georgia will make it increasingly difficult for the state to meet the 60 percent college completion objective by 2025. The 2017 American Community Survey (5-year Sample) data for Georgia's population aged 25 and over indicate that 22.6 percent of blacks and 16 percent of Hispanics have a bachelor's degree or higher compared to 33.7 percent of non-Hispanic whites. Moreover, the black and Hispanic populations will grow much faster than the non-Hispanic white population. For example, population projections for 2017 to 2025 prepared by the Governor's Office of Planning and Budget show Georgia's black population growing at a compound annual rate of 1.3 percent per year compared to only 0.2 percent per year for the non-Hispanic white population. Similarly, the projections show Georgia's Hispanic population growing at a compound annual rate of 2 percent per year. As Exhibit 4 indicates, the racial and ethnic populations that currently are growing the fastest are less likely to attain postsecondary education credentials. Substantial intervention will be needed to change that.

For Employers

Employers are acutely interested in postsecondary students entering the labor market. If they find enough qualified

Exhibit 4. Georgia Residential Population Projections by Race, 2017-2025

		Non-Hispanic			
Year	Total	White	Black	Other	Hispanic
2017	10,429,379	5,507,334	3,267,577	648,509	1,005,959
2018	10,517,912	5,513,610	3,310,604	666,860	1,026,838
2019	10,606,453	5,519,904	3,353,707	685,209	1,047,633
2020	10,694,980	5,526,117	3,396,756	703,528	1,068,579
2021	10,783,482	5,532,444	3,439,808	721,873	1,089,357
2022	10,872,082	5,538,680	3,482,880	740,199	1,110,323
2023	10,976,681	5,552,076	3,530,223	760,933	1,133,449
2024	11,081,413	5,565,473	3,577,611	781,704	1,156,625
2025	11,186,110	5,578,801	3,624,928	802,481	1,179,900
2017-2025 Compound Annual Rate of Growth*	0.9%	0.2%	1.3%	2.7%	2.0%

*Calculated by the Selig Center for Economic Growth, Terry College of Business, University of Georgia.

Source: Governor's Office of Planning and Budget, Gerogia Residential Population Projections by Race: 2017-2062, 2019 Series.

candidates to fill the vacancies they have, economic growth will result. If not, the economy will suffer. Thus, evidence on employers' hiring decisions and industry trends provide critical information on existing or emerging skills gaps, and the essential role of postsecondary education in overall economic performance.

The views among employers have been directly examined through a series of reports commissioned by the American Association of Colleges and Universities (AAC&U) and conducted by Hart Research Associates (a public opinion firm). Their most recent report in 2018 focused on better understanding the learning outcomes viewed as most essential in the current economy, and the level of preparedness of today's college graduates.

Targeting employers with "at least 25 employees and report that 25 percent or more of their new hires hold either an associate degree from a two-year college or a bachelor's degree from a four-year college" (Hart Research Associates, 2018), two surveys were conducted; one among 501 business executives at private sector and nonprofit organizations (including owners, CEOs, presidents, vice presidents, and directors), and another among 500 hiring managers or non-executives whose responsibilities included recruiting, interviewing, and/or hiring new employees.

The findings are compelling: Almost two thirds of the executives and hiring managers expressed confidence in colleges and universities. Furthermore, strong majorities of executives (82 percent) and hiring managers (75 percent) feel that it is important and essential to complete a college education and worth the time and money to do so. Commonly cited responses to the value of a college education included: the accumulation of knowledge; the development of analytical and critical thinking skills; and an increase in earnings. But most of them believe that higher education institutions need to do a better job of ensuring that their graduates have both the skills and the knowledge needed for success at entry-level and mid-level positions.

Furthermore, employers place a high priority on a variety of skills and knowledge areas that span college majors. Skills of greatest importance include many of those traditionally associated with liberal arts education (Pascarella, Wolniak, Cruce, Seifert and Blaich, 2005) and echo the views of workers who cite the importance of soft skills and technical skills for succeeding in the current economic environment (Pew, 2016). Employers point to oral communication, critical thinking, ethical judgment, working effectively in teams, working independently, self-motivation, written communication, and real-world application of skills and knowledge as their highest priority skills for their workers to possess (Hart Research Associates, 2018). Many of these same competencies were cited in the *2019 Job Outlook* report by the National Association of Colleges and Employers, based on 87 organizations across a range of industries (NACE, 2018).

In Georgia, the HDCI collaboration similarly identified the top high- demand skills to include soft skills, mathematics, work ethic, customer focus, project management, robotics, analytical skill, business acumen, problem solver, and teamwork. However, the U.S. Department of Labor's Job Openings and Labor Turnover Survey (JOLTS), based on a national sample of roughly 16,000 organizations, provides data on the overall employment changes in the economy across major industries at the national, regional, and state levels. Estimates for Georgia show that hiring currently lags job openings, an indicator that in recent years it is difficult for employers to find workers with needed skills (BLS, 2019). The latest estimates for Georgia (from June 2019) show that there were approximately 236,000 job openings and only about 186,000 hires.

The National Skills Coalition (2017) reports that several of Georgia's key industries cannot find enough sufficiently trained workers to fill middle-skill jobs. Moreover, these jobs account for 55 percent of Georgia's labor market, but only 43 percent of the state's workers are qualified—a 12 percent gap compared to the 10 percent gap estimated for the U.S. The Education Commission of the States (2019) further indicates that business leaders in Georgia cannot find the science, technology, engineering, and math talent they need to stay competitive. Our review of the historical data indicates that the differential between job openings and hiring is persistent rather than fleeting.

Implications for Georgia

Evidence makes it clear that Georgia needs a more highly skilled workforce and that existing workforce development policies are unlikely to raise postsecondary educational attainment far enough and fast enough to meet employers' current and future needs. Unless there is a substantial increase in Georgia's postsecondary attainment, existing skills gaps will get wider and new ones will open. If we continue as we are, it is likely that employers will not be able to find the skilled workers they need, which will limit economic growth.

Since 2011, Georgia's rate of postsecondary educational attainment has increased, but progress is not occurring fast enough for Georgia to reach 60 percent by 2025. The Institute for Research on Higher Education (IRHE, 2018) indicates that if Georgia continues its current path, it will fall short of the benchmark by 671,259 credentials. IRHE's assessment reflects: (1) low performances on national assessments of preparation for postsecondary education; (2) low participation in postsecondary education programs; and (3) high income inequality—which creates a wide disparity in terms of college affordability. Substantial policy intervention is needed for Georgia to raise postsecondary educational attainment more quickly.

Additional funding for postsecondary education is also needed. Between 2006 and 2016, per capita inflation-adjusted funding for higher education by Georgia's state and local governments declined by 20 percent even as inflation-adjusted per capita taxable resources within the state rose by about 9 percent (SHEEO, 2019).

This represents a dramatic decrease in support for higher education that has serious implications in terms of postsecondary access, completion, and quality. For example, a recent National Bureau of Economic Research report (Bound, Braga, Khanna, and Turner, 2019) found that declines in state funding per student negatively affected degree attainment at the undergraduate and graduate levels. Bound et al. further report that Georgia's higher education appropriations per FTE dropped by about $4,000 (in 2017 inflation-adjusted dollars) from 2001 to 2017, with only five state—Pennsylvania, Massachusetts, Missouri, Michigan, and Iowa— experiencing deeper cuts.

The benefits of support for additional funding for postsecondary education centers not only on the need to satisfy workforce demand. Evidence also points to a sizable return on higher education investments for governments. Take, for example, Trostel's (2010) examination of government expenditures on higher education relative to the gains in tax revenue. The findings show that total public returns on a college degree are substantially greater than public expenditures. According to Trostel, the public internal rate of return on government funds invested in college students is at least 10 percent (based on comparisons of government expenditures on higher education relative to the gains in tax revenue). While enrollment trends suggest individuals respond rationally to the private returns through sustained and increasing demand for higher education, the same cannot be said for the public sector where, despite substantial public monetary returns, reduced investment in higher education has been the norm rather than the exception.

Due to demographic, economic, cultural, and political differences, there is growing recognition that a single approach toward increasing postsecondary educational attainment will not work well for all the states. For example, Rubin and Hearn (2018) compare distinctive state-level responses to improving postsecondary education degree completion in Georgia, South Carolina, and Texas. Compared to the other states, Georgia is distinguished by its focus on statewide attainment rates through the Complete College Georgia (CCG), its particularly high gubernatorial influence in setting policy direction, and by having job growth as a central focus of the state's policy agenda. The study highlights that, among the three states examined, Georgia is particularly well suited for implementing system-wide postsecondary innovation and for using higher education as a mechanism by which the government can achieves its goals. A recent report by Finney, Granville, Edgerton, and Napier (2018), however, highlights that Georgia will fall short of its goal due to inadequate attention to policies that promote postsecondary access, and due to a lack of engagement among policymakers, business leaders, and education leaders specifically around issues of affordability and disparities in access.

Recommendations

So how is this shortfall to be addressed? This paper proposes the creation and funding of a need-based aid program for Georgia's postsecondary students. In addition, the paper endorses existing workforce development and job training initiatives as well as the continued implementation of effective programmatic support to assist students in gaining access to and successfully completing postsecondary programs.

Need-Based Financial Aid

Major aid programs in Georgia include Hope Grants, Hope Scholarships, Zell Miller Grants, and Zell Miller Scholarships. Georgia also supports the Move on When Ready Program that allows students to dual enroll in a technical school or college while still in high school, which should boost the state's overall postsecondary attainment rates, but has been criticized for not focusing on specific occupations or industries (GSFCa, 2019). Relatedly, there has been an expansion of the Strategic Workforce Development Grants (now called HOPE Career Grants), initiatives to address skills gaps in cybersecurity and film, and new partnerships between the Technical College System of Georgia and businesses (Wilson, Epps, Tanner, Gordon, and Sigler, 2014). In 2016, the HDCI was split into two separate tracks – HDCI sector partnerships and industry task forces (TCSG, 2019).

The HOPE Scholarship is a merit-based award program that accounts for almost all state-funded expenditures for student financial aid. Established in 1992, the state lottery-funded Scholarship consists of six different financial aid programs: HOPE Scholarship, HOPE Grant, Zell Miller Scholarship, Zell Miller Grant, HOPE GED Grant, and HOPE Career Grant. The Georgia Student Finance Commission (2019) estimates that HOPE has provided more than $10 billion in financial assistance to over 1.8 million postsecondary education students.

It was envisioned that HOPE would create a better-educated workforce by providing tuition assistance at eligible Georgia postsecondary institutions to incentivize and reward Georgia's high achieving students (GSFC, 2019b). In addition, HOPE was intended to boost high school performance and incentivize high-achieving high school graduates to attend college in-state. The Georgia Budget and Policy Institute (Lee, 2018) submits that HOPE is effective as a retention, reward, and quality improvement strategy, but not an efficient approach to meet state educational completion goals.

Our analysis supports this general conclusion. Bugler, Henry, and Rubenstein (1999) found that college-bound high school students are achieving more in high school since HOPE began, including higher GPAs, higher SAT scores, and more rigorous course loads in high school. Cornwell, Mustard, and Shridhar (2006) found that HOPE increased overall first-time freshmen enrollment by 6.9 percent mainly through a relative price effect that incentivized the state's best high school graduates to stay in state for college. In addition, they found that black enrollment rates at four-year public (private) schools were 27 percent (14 percent) higher because of HOPE, with historically black colleges and universities playing a major role.

What is lacking in the current Georgia policy is a statewide program to facilitate higher education access among low-income students. Within the University System of Georgia, in 2018, among students from families with annual incomes above $100,000, 79 percent received support from HOPE. Alternatively, among students from families with annual incomes below $40,000, only 28 percent received support from HOPE (Lee, 2019a). Therefore, HOPE disproportionately benefits higher income students and families.

Though extremely generous in the amount of grant aid Georgia provides its postsecondary students, the aid is almost exclusively merit based. This prioritizing of merit aid is highly unusual: only Georgia and New Hampshire gave no need-based grants (NASSGAP, 2019). More common are states that prioritize need-based grant aid: the seven states

that did not give any merit-based grant aid are Arizona, Hawaii, Kansas, Maine, Rhode Island, Texas, and Wyoming (NASSGAP, 2019). All other states offer their students some combination of need- and merit-based aid. Nationally, $11.7 billion in total is spent on undergraduate student aid programs. Of this, 46 percent ($5.4 billion) is based solely on need, 22 percent ($2.6 billion) is based on a combination of need and merit, and 17 percent ($2 billion) is based solely on merit. The remaining 14 percent ($1.7 billion) was for special purpose awards or uncategorized (NASSGAP, 2019).

Georgia is thus an extreme outlier in terms of its exclusive focus on merit-based rather than need-based financial aid, which has implications for postsecondary education access and completion, as well as the skills gap. With the exception of the two relatively small state funded programs—the Georgia Lottery-funded loan program and REACH scholarships—Georgia students must rely primarily on federal programs like Pell Grants and federal student loans to address their financial needs. Despite the fact that Georgia invests more than five times the national average in financial aid awarded, the absence of state need-based financial aid explains why Georgia ranks 35th among the states in college affordability (Finney, 2016).

State-funded need-based financial aid is critical for expanding access to postsecondary education for large numbers of low-income Georgians who meet college or technical school admissions requirements, but who either do not qualify for HOPE scholarships or depend on additional financial support to pursue a postsecondary degree. Moreover, state-funded need-based financial aid is necessary to help low-income college students complete their degree/certificate programs in a timely manner. Not to be overlooked is the fact that low-income families are more likely to be minority and/or from rural areas of the state. A lack of need-based aid contributes to these students being underrepresented in Georgia's postsecondary education system. Thus, the kind of financial aid program that will be most effective at boosting postsecondary access in Georgia must be tailored to low-income, minority, and rural students.

The debate about merit- versus need-based financial aid is likely to continue without resolution (McBain, 2011). Merit-based aid tends to advance efficiency goals by boosting the quality of both high school and postsecondary graduates, and incentivizing Georgia's high school graduates to stay in-state for college. Alternatively, need-based aid tends to advance equity goals by improving postsecondary access and completion. Ultimately, both are needed to satisfy the state's workforce demands.

In 2018, Georgia's lawmakers created a potentially broad need-based financial aid program (H.B. 787), but it was not funded in either the fiscal year 2019 or the 2020 budget (GBPI, 2019). The REACH Georgia Scholarship, created in 2012 and administered by the Georgia Student Finance Authority, is the state's first need-based scholarship and mentorship program, but it currently serves only 1,800 students. In addition, the state provides lottery-funded loans that give some weight to need. Georgia's 2020 budget provides $26 million for such loans as well as $5 million for the REACH program (GBPI, 2019).

It is our assessment that Georgia will not be able to increase postsecondary educational attainment enough to attain the 2025 college completion goal much less meet employers' growing demand for skilled workers—especially middle-skill workers—unless the state establishes a state-sponsored, well-funded student financial aid program to help low- and middle-income Georgians who meet all admissions requirements. College affordability challenges efforts to raise attainment levels, especially for low- and middle-income students (SREB 2017). Most of Georgia families struggle to pay for college education. In 2016, the percentage of annual income needed to pay the net price at a public four-year college in Georgia ranged from 79 percent for families with incomes below $30,000, to 35 percent for families with incomes between $30,000 and $48,000, to 26 percent for those with incomes between $48,000 and $75,000, to 19 percent for those with incomes between $75,000 and $110,000 (SREB, 2018). Only families with incomes of $110,000 or more (roughly one-fifth of Georgia's population) can easily afford to send a student to a four-year college.

Ultimately, HOPE functions well for a merit-based postsecondary education financial aid program, but it does not achieve the same objectives as a broad need-based aid program, which is crucial to increasing access and completion.

The architecture of a new need-based aid program will be important. The general design outlined in H.B. 787

is a good starting point and, of course, there is much to be learned from existing programs in other states. An efficient beginning could be made, for example, by expanding Georgia State University's Panther Grant program (see page 15) to other Georgia postsecondary institutions. A rough estimate is that these grants could be fully scaled up at a cost of approximately $25 million per year, and there is evidence that this would have a significant effect on student retention.

Georgia's allocation of fiscal resources between need-based financial aid and merit-based aid should reflect Georgia's priorities. In fact, many states have financial aid programs that reward academically successful students who are financially needy rather than basing awards solely on either need or merit. A hybrid financial aid grant program based on both merit and need might find more support in Georgia than one based solely on need.

Workforce Development and Job-Training Initiatives

Georgia supports several workforce development programs designed to better align specific fields of study with employers' specific needs. Such policies are designed to fill identifiable skills gaps while simultaneously promoting economic development.

Historically, the state primarily relied upon the Quick Start Program to provide specialized workforce training via both the Technical College System of Georgia and the University System of Georgia. In addition to filling skills gaps, the Quick Start program is used as an economic development incentive to land competitive projects and to retain existing industries. Beginning in 2013, Strategic Industries Workforce Development Grants (now called HOPE Career Grants), sought to better align students' majors with employers' needs in an expanding number of certificate and diploma programs deemed critical to Georgia's growth. The HOPE Career Grant program is designed to meet industry-wide workforce needs by creating a pipeline of workers that employers can hire well into the future. In combination, HOPE Grants and HOPE Career Grants cover tuition for students pursing certificates and diplomas, but the aid is not available to students pursing associate degrees in Hope Career Grant fields—a major shortcoming.

In addition, Georgia WorkSmart is a workforce development program operated by the TCSG that was born out of the Governor's HDCI (TCSG, 2019a, 2019b). The main feature of this highly customized training program is the Registered Apprenticeship, which allows part-time TCSG students to earn their degree or certificate while they are employed full-time. The program ensures that it dovetails well with local employers' workforce needs, which vary considerably across the state.

In recent years, Georgia has also built several very specialized job-training centers that are designed to provide skilled labor needed by a specific industry in efforts to win competitive economic development deals and to catalyze the growth of industry clusters. For example, the BioScience Training Center in Stanton Springs was built primarily to train workers for Baxalta's bio-manufacturing facility and is currently dedicated only to Baxalta/Shire training (Stanton Springs, 2019), but it has the capacity to train workers for other life sciences companies. In the wake of the U.S. Army's decision to move the Cyber Command to Augusta, the state announced that it would build a Georgia Cyber Center, which opened in 2018 (Georgia Cyber Center, 2019), to provide the skilled personnel to support a cluster of cybersecurity companies there. The amended 2019 fiscal year budget included $35 million to build an Aviation Academy in Paulding County to train aircraft mechanics (Lee, 2019b). Students will be able to attend tuition free if they obtain Hope Career Grants. Georgia's third largest employer—Delta Air Lines—will be a major beneficiary. In addition, the Georgia Film Academy was built to support the state's film industry (Georgia Film Academy, 2019).

Programmatic Support Once in College

Postsecondary access is a necessary but not sufficient condition for completion. In other words, it is not enough to focus attention solely on programs that facilitate enrollment following high school. Once a person enters the postsecondary education system, continued efforts are required to support that student's progress toward graduation.

Existing empirical evidence points to successful strategies that start early during students' transitions into college, focus on college financing, and continue to employ creative strategies for effective developmental education for the underprepared (Wolniak, Flores, and Kemple, 2016). Similar

strategies have been highlighted in recent reports focused on Georgia. For example, Finney, Maloney, Granville, Edgerton, and Napier (2018) recommend policies that reduce the disparity between enrollment and completion; reduce outcome disparities by race and Hispanic origin; support a robust need-based financial aid program to improve educational outcomes for low-income Georgians; and focus on college readiness to ensure higher participation in postsecondary education. The Panther Grants are an example of Georgia's more notable efforts.

Panther Grants

Beginning in 2011, Georgia State University (GSU, 2018, n.d.) made available small funding awards to students who were close to graduation but were at-risk of dropping out due to modest unpaid balances. With over 70 percent of GSU's bachelor's degree-seeking undergraduates possessing some level of unmet need, these "microgrants" (also referred to as "retention grants" or "emergency grants") have proven essential to student success at the university. Since its inception, GSU has awarded over 12,000 Panther Grants, with an average award of $900. Of the seniors who received one of these grants in the 2016 academic year, nearly 80 percent graduated within three semesters. By comparison, a group of similar, Pell-eligible seniors who did not receive Panther Grants had a 27 percent graduation rate (GSU, 2018, n.d.).

Efforts are currently underway to expand this microgrant program to other student populations at the university, such as lower-level students, and to scale the program to other universities in the system. Similar microgrant programs are increasingly popular across the nation (Fain, 2016). By leveraging relatively small sums of money, institutions can help students to weather temporary financial difficulties, stay enrolled, and subsequently pay their tuition. In turn, the state and graduates alike reap the returns on their postsecondary investments.

Momentum Year and Complete College Georgia

Launched in 2017 by Complete College Georgia, a statewide effort to increase attainment rates of high-quality certificates and degrees, Momentum Year is a series of initiatives targeted towards first-year students in USG institutions. These strategies create "a starting point that helps students find their path, get on that path and build velocity in the direction of their goals" (Complete College Georgia, 2019). Using evidence-based research, this program advocates for early declaration of "meta-majors" that group academic programs together so that students can explore different fields of study while still staying on course for successful and on-time graduation. Other strategies include supporting students' academic mindsets and establishing sequenced program maps that include core English and math courses, 9 credits in a student's interest area, and the completion of 30 credit hours by the end of their first year.

Efforts to Move Textbooks Online

Affordable Learning Georgia (ALG) is a student success initiative established by the University System of Georgia in 2013 to promote and support implementation of alternatives to commercially available textbooks (ALG, n.d.a). These include open source and online textbooks such as Open Educational Resources, OpenStax Textbooks, and electronic sources through GALILEO. In addition, ALG provides grants to faculty and instructors to adapt their courses from commercial to open source textbooks. ALG has worked with the University of North Georgia Press to develop open textbooks for high-enrollment courses within the system. Since its creation, ALG has saved 379,000 students across the USG system an impressive $61.9 million (ALG, n.d.b). Similarly, in spring 2019, the University of Georgia began awarding grants to fund digital texts and other affordable alternatives. This UGA-based program is expected to save 7,400 students over $770,000 in textbook costs per year.

Relatedly, the USG has recently implemented a cost indicator system for its institutions' online course registration. Beginning in Fall 2018, as part of the ALG initiative, institutions are required to designate courses in which the materials are free (e.g., free online or open-source textbooks) or low cost (i.e., less than $40) at the point of registration (ALG, n.d.c).

Reduce Lab and Other Course Fees

In an effort to reduce the overall cost of university attendance and eliminate a potential financial barrier to course enrollment, higher education institutions in Georgia have strived to reduce or eliminate laboratory and supplemental

fees. These fees, ranging from $5 to $200, were traditionally used to offset the cost of laboratory supplies and materials. At the University of Georgia, for example, a fund was established by the Vice President of Instruction to help eliminate course fees by the Spring semester 2020, at an estimated $1.2 to $1.3 million annually (Richmond, 2019). Previously, an average of 13,000 to 14,000 UGA students, primarily arts and sciences majors, paid an average of $50 per semester to cover laboratory expenses.

Dual Enrollment

Duel enrollment enables students to take postsecondary coursework for credit towards both high school graduation (or home study completion) and postsecondary degree, diploma, or certificate requirements while not having to pay for tuition, fees or books (Lee, 2019c). In recent years, participation in dual enrollment has increased dramatically in Georgia, from 11,484 students in 2013 to 43,639 in 2018 (Cardoza, 2019; Lee, 2019c). This rapid increase has led to concerns that the program was expanding too rapidly to maintain quality control. The state actually decreased dual enrollment funding in the FY 2020 budget, forcing a decision to pass along the costs for student books and fees to participating institutions.

Since 2005, the University System of Georgia has partnered with a variety of Georgia public school systems to develop Early Colleges. The schools allow students to earn an associate degree or two years of college credit toward a bachelor's degree concurrently with a high school diploma. These institutions partner with local colleges and universities to offer rigorous college-level courses alongside their high school curriculum (Early College, n.d.). In addition to these brick and mortar institutions, eCore, a collaborative of the USG to make education more accessible, allows high schoolers to enroll in approximately 30 approved college-level courses online (eCore, 2018).

Achieve Atlanta

Spurred by the notion that only 14 percent of ninth graders in the Atlanta Public School (APS) System were projected to earn a postsecondary credential of any kind within six years of high school graduation, the Joseph B. Whitehead Foundation partnered with The Community Foundation of Greater Atlanta in 2014 to form Achieve Atlanta. This organization assists APS students in postsecondary education access, affordability, and completion. Through their partnerships with College Advising Corps and OneGoal, Achieve Atlanta assists in advising support for APS juniors and seniors. Achieve Atlanta also assists APS high schools in developing and tracking key college-going metrics (e.g., college enrollment, FAFSA completion, number of college applications). The organization has provided additional support through free SAT testing during regular school hours to all APS juniors. As a result of these efforts, there has been a 20-point increase in APS students completing the FAFSA and a 9 percent increase in college enrollment since the inception of the program (Achieve Atlanta, 2018). In addition, Achieve Atlanta has established a need-based scholarship, which awards APS graduates up to $5,000 per year to pursue a bachelor's degree, for students who meet the scholarship requirements. To date, the Achieve Atlanta Scholarship has awarded over $11 million to over 2,200 APS students to pursue postsecondary education (Achieve Atlanta, 2018).

Georgia College Advising Corps

Established in 2009 by the University of Georgia's Institute of Higher Education in partnership with national College Advising Corps, the Georgia College Advising Corps (GCAC) is a year-long program that trains college advisors for placement into high schools across the state. These advisors work with students in underserved high schools in an effort to increase college attendance and completion among first-generation, low-income, and underrepresented minority students. Advisors help guide students through the application and admissions process and assist in applying for financial aid. Since its creation, GCAC has trained nearly 100 advisors, who in turn have helped over 28,000 Georgia high schoolers (GCAC, n.d.). In 2018-2019 academic year, GCAC advisors aided over 4,400 students from across the state. Data indicate that students who meet with a GCAC advisor are 40 percent more likely to apply to more than one institution, 37 percent more likely to apply for scholarships, and are 32 percent more likely to complete a FAFSA.

Conclusions

The evidence makes it clear that Georgia needs a more highly skilled workforce, and existing workforce development policies are unlikely to raise postsecondary educational attainment far enough and fast enough to meet employers' current and future needs.

Unless there is a substantial increase in Georgia's postsecondary attainment, existing skills gaps will get wider and new ones will open. If we continue as we are and do not make any changes in postsecondary education polices, particularly including the creation of a need-based financial aid program, it is likely that Georgia's employers will not be able to find the skilled workers they need, which will limit economic growth. In the past, need-based financial aid sometimes has been cast negatively as a social welfare program. Whatever views are held on this matter, the reality is that without a need-based financial aid program, Georgia is leaving potential economic growth on the table and shortchanging its citizens.

In short, an increased supply of college-educated labor creates its own demand (Bartick, 2009; Gottleib and Fogarty 2003). An increase in labor supply stimulates labor demand by at least two-thirds of the supply increase (Bartick, 2001). This occurs because additional labor attracts employers and additional higher-skilled labor attracts employers with more skilled jobs (Bartick, 2009). Achieving this virtuous cycle of growth will require Georgia to improve its postsecondary education and workforce development policies. Additional fiscal resources will be essential. For example, state-funded need-based financial aid is basic to boosting access to postsecondary education for low-income Georgians who meet college or technical school admissions requirements but do not qualify for the state's very successful merit-based HOPE scholarships. Moreover, state-funded need-based financial aid is necessary to help low-income postsecondary education students complete their degree/certificate programs in a timely manner.

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The Data

The following appendix provides data developed by the Selig Center in conjunction with this study.

Tables 1-3 and Figures 1-3 provide data on how entry-level requirements for certain jobs and industries in Georgia and the U.S. are changing over time. This data will be particularly valuable in determining how to structure future education and training programs to match labor market needs.

Tables 4 -16 and Figures 4 -7 provide detailed, disaggregated data on educational attainment in both the U.S. and more specifically in Georgia.

Tables 17- 23 and Figures 8 - 23 provide further detailed, disaggregated data on the synthetic lifetime earnings estimates discussed in the text above.

Table 1
Employment by Typical Entry Level Education Requirement
in Georgia, 2016-2026
(percent change)

Educational Attainment	Employment 2016 Base	Employment 2026 Projected	2016-2026 Employment Change Number	2016-2026 Employment Change Percent
Doctoral or professional degree	98,630	114,650	16,020	16.2
Master's degree	66,040	79,100	13,060	19.8
Bachelor's degree	957,660	1,094,820	137,160	14.3
Associate degree	97,120	112,180	15,060	15.5
Postsecondary, no degree	285,760	328,950	43,190	15.1
Some college, no degree	106,940	117,660	10,720	10.0
High school diploma or equivalent	1,770,710	1,940,060	169,350	9.6
No formal educational credential	1,121,980	1,242,370	120,390	10.7
Total	**4,504,840**	**5,029,790**	**524,950**	**11.7**
Bachelor's degree or higher	1,122,330	1,288,570	166,240	14.8
Some college, postsecondary, or associate degree	489,820	558,790	68,970	14.1
High school graduate	1,770,710	1,940,060	169,350	9.6
No formal education credential	1,121,980	1,242,370	120,390	10.7
Total	**4,504,840**	**5,029,790**	**524,950**	**11.7**

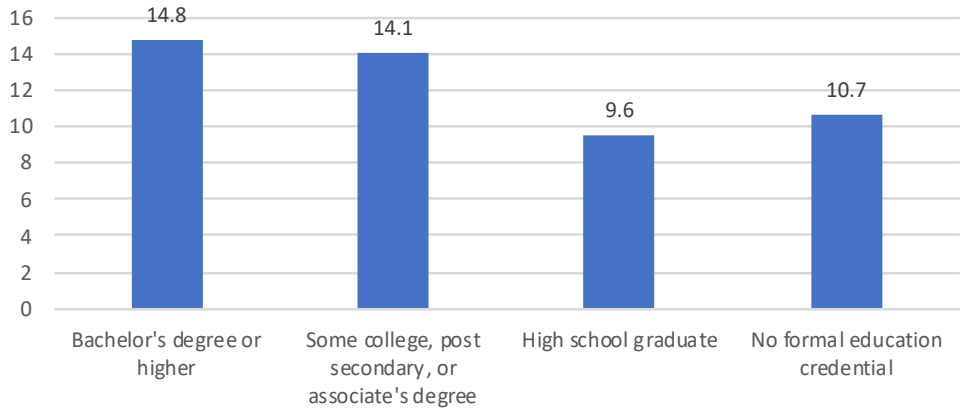
Portion of Total Employment, by Typical Entry Level Education Requirement, All Occupations

Educational Attainment	Employment 2016 Base	Employment 2026 Projected	Portion of 2016-2026 Growth
Doctoral or professional degree	2.2	2.3	3.1
Master's degree	1.5	1.6	2.5
Bachelor's degree	21.3	21.8	26.1
Associate degree	2.2	2.2	2.9
Postsecondary, no degree	6.3	6.5	8.2
Some college no degree	2.4	2.3	2.0
High school diploma or equivalent	39.3	38.6	32.3
No formal educational credential	24.9	24.7	22.9
Total	**100.0**	**100.0**	**100.0**
Bachelor's degree or higher	24.9	25.6	31.7
Some college, postsecondary, or associate degree	10.9	11.1	13.1
High school graduate	39.3	38.6	32.3
No formal education credential	24.9	24.7	22.9
Total	**100.0**	**100.0**	**100.0**

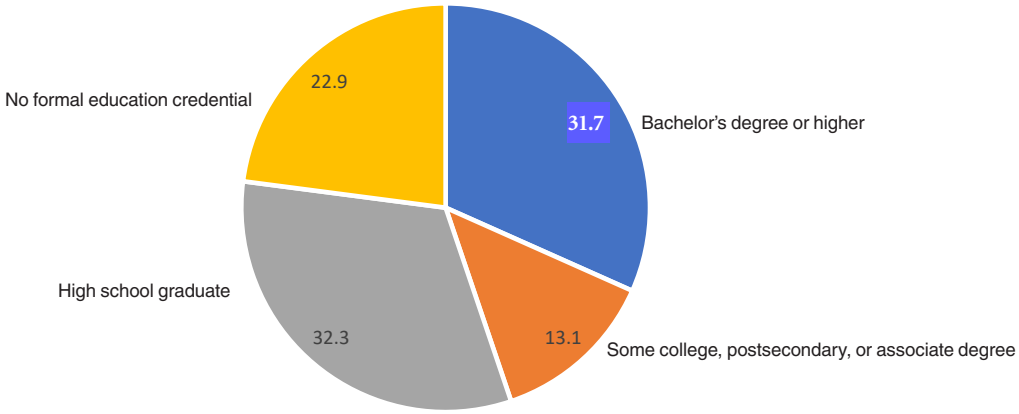
Source: Selig Center for Economic Growth, based on Georgia Department of Labor, Long-Term Occupational Projections, 2016-2026.

Figure 1

2016-2026 Projected Employment Growth
By Typical Entry Level Education Requirement
(percent)



2016-2026 Employment Growth:
New Jobs by Typical Entry Level Education Requirement
(percent)

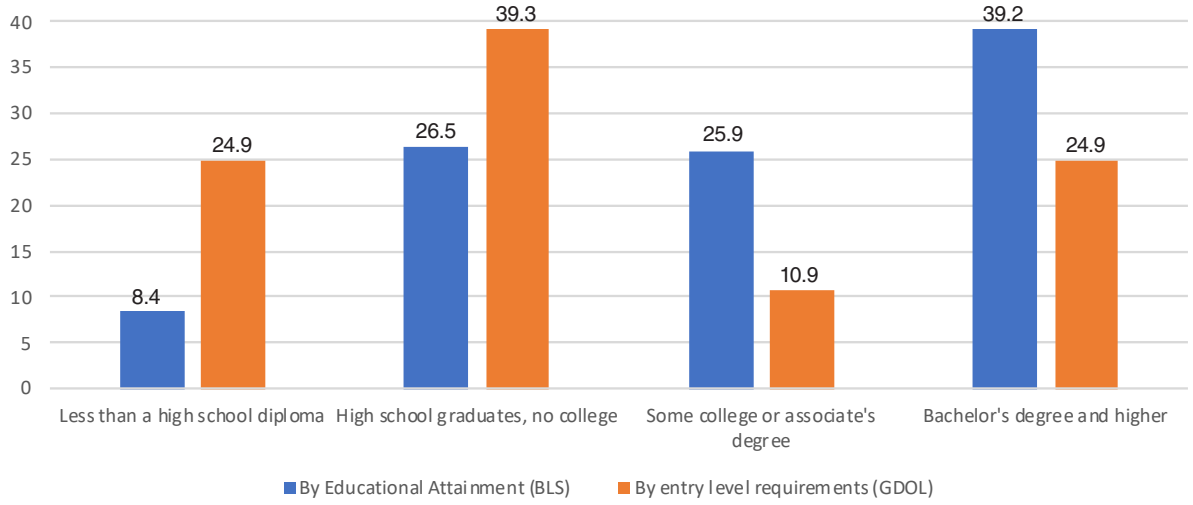


Source: Selig Center for Economic Growth, based on Georgia Department of Labor, Long-Term Occupational Projections, 2016-2026.

Table 2
Employment by Educational Attainment of Workers, and by Entry Level Requirement, in Georgia, 2016

	Employment			
	Number		Percent	
Education Level	Age 25+ Ed. Attainment	All Entry Level Requirements	Age 25+ Ed. Attainment	All Entry Level Requirements
Less than high school diploma	348,000	1,121,980	8.4	24.91
High school graduate, no college	1,091,000	1,770,710	26.5	39.31
Some college or associate degree	1,066,000	489,820	25.9	10.87
Bachelor's degree and higher	1,618,000	1,122,330	39.2	24.91
Total	4,123,000	4,504,840	100.0	100.00

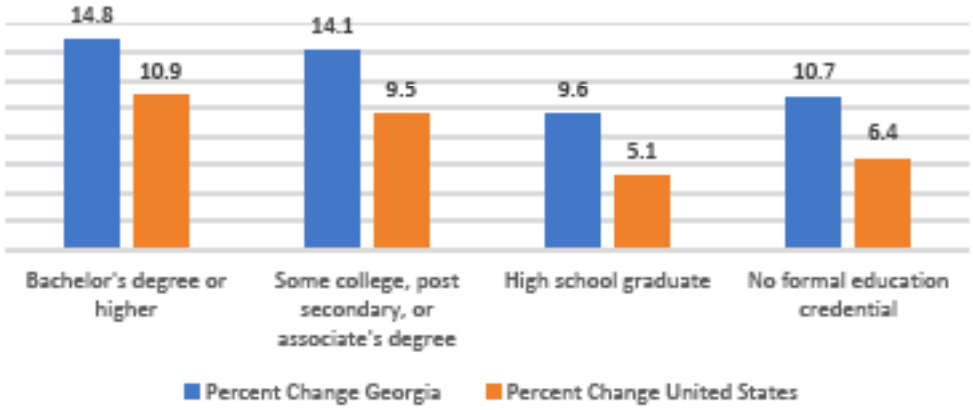
Figure 2
Employment by Educational Attainment of Workers, and by Entry Level Requirement, in Georgia, 2016



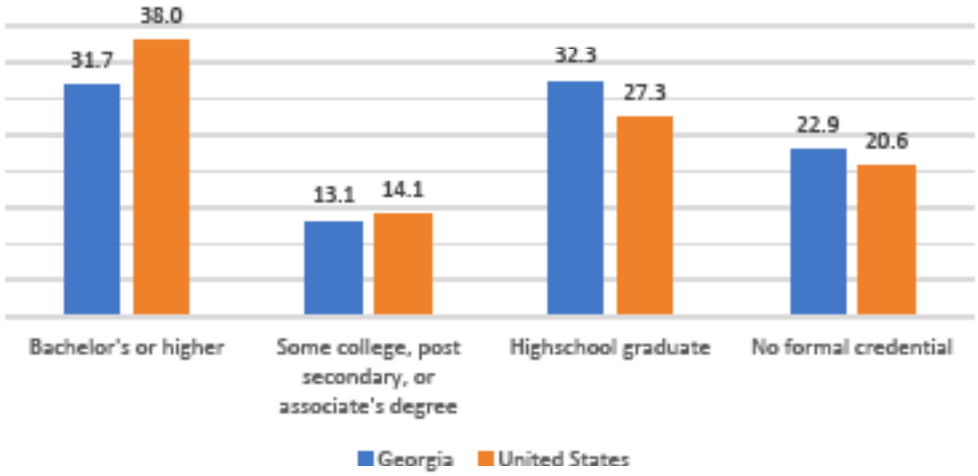
Source: Selig Center for Economic Growth, based on Georgia Department of Labor, Long-Term Occupational Projections, 2016-2026; U.S. Bureau of Labor Statistics, Geographic Profile of Employment and Unemployment, 2016.

Figure 3

Job Growth, By Typical Entry Level Requirement, in Georgia and the United States, 2016-2026



New Jobs, By Typical Entry Level Requirement, in Georgia and the United States (percent)



Source: Selig Center for Economic Growth, based on Georgia Department of Labor, Long-Term Occupational Projections, 2016-2026; U.S. Bureau of Labor Statistics, Employment Projections 2016-2026.

Table 3
Task Automation Potential
and Employment Concentration, by Industry

Industry Sector	Task Automation Potential	Sector Concentration in Georgia*
Accommodation and food services	73	1.03
Manufacturing	60	1.06
Transportation and warehousing	60	1.32
Agriculture, forestry, fishing, hunting	57	0.7
Retail trade	53	1.03
Mining	51	0.25
Other services (except gov't)	49	0.79
Construction	47	0.9
Utilities	44	1.14
Wholesale trade	44	1.22
Finance and insurance	43	0.93
Arts, entertainment and recreation	41	0.75
Real estate and rental and leasing	40	1.04
Administrative and support	39	1.21
Information	36	1.31
Health care and social assistance	36	0.82
Professional, scientific and technical services	35	0.98
Management of companies and enterprises	35	1.03
Educational services	27	0.85

*Based on Location Quotient measure, which compares the share of industry employment in Georgia to the industry's employment share in the United States on average. Totals include paid employment, subject to Unemployment Insurance.

Source: Selig Center for Economic Growth, based on McKinsey Global Institute, *A Future That Works: Automation, Employment and Productivity*; U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, Quarter 4, 2018.

Table 4
Educational Attainment for Population Ages 25-64,
with Percent Change from 2007 to 2017 and
Change in Percent Distribution in Georgia and the United States

Education Level	2007 Number Georgia	2007 Distribution Georgia	2007 Distribution U.S.	2017 Number Georgia	2017 Distribution Georgia	2017 Distribution U.S.	2007-2017 Change Percent Georgia	2007-2017 Change Percent U.S.	2007-2017 Change Distribution Georgia	2007-2017 Change Distribution U.S.
No high school diploma	744,563	14.5	13.0	642,916	11.7	10.9	-13.7	-10.3	-2.8	-2.1
High school grad, no college	1,553,720	30.2	29.1	1,485,239	27.0	25.9	-4.4	-5.2	-3.2	-3.2
Some college	1,008,369	19.6	20.2	1,129,313	20.6	20.7	12.0	8.9	1	0.5
Associate degree	354,922	6.9	8.3	465,049	8.5	9.2	31.0	17.2	1.6	0.9
Bachelor's degree; higher	1,478,705	28.8	29.4	1,772,898	32.3	33.3	19.9	20.7	3.5	3.9
Population 25-64	5,140,279	100.0	100.0	5,495,415	100.0	100.0	6.9	6.5	NA	NA

Source: U.S. Census Bureau, American Community Survey, 2007 and 2017 1-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Table 5
Educational Attainment and Distribution
for Population Ages 25-64, by State, 2017
(number; percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher	Total
Alabama						
Number	304,559	760,105	546,370	226,807	672,144	2,509,985
Percent	12.1	30.3	21.8	9	26.8	100
Alaska						
Number	30,144	113,924	106,094	34,929	115,560	400,651
Percent	7.5	28.4	26.5	8.7	28.8	100
Arizona						
Number	462,007	819,849	880,164	325,430	1,024,148	3,511,598
Percent	13.2	23.3	25.1	9.3	29.2	100
Arkansas						
Number	176,449	502,083	337,443	123,341	369,342	1,508,658
Percent	11.7	33.3	22.4	8.2	24.5	100
California						
Number	3,322,746	4,395,725	4,532,446	1,655,141	7,269,570	21,175,628
Percent	15.7	20.8	21.4	7.8	34.3	100
Colorado						
Number	247,175	632,900	628,669	262,946	1,279,174	3,050,864
Percent	8.1	20.7	20.6	8.6	41.9	100
Connecticut						
Number	152,966	494,381	322,808	164,285	763,172	1,897,612
Percent	8.1	26.1	17	8.7	40.2	100
Delaware						
Number	42,590	152,790	98,914	39,031	165,908	499,233
Percent	8.5	30.6	19.8	7.8	33.2	100
District of Columbia						
Number	32,176	66,226	51,435	13,204	247,465	410,506
Percent	7.8	16.1	12.5	3.2	60.3	100
Florida						
Number	1,136,127	3,050,964	2,162,528	1,208,628	3,249,894	10,808,141
Percent	10.5	28.2	20	11.2	30.1	100
Georgia						
Number	642,916	1,485,239	1,129,313	465,049	1,772,898	5,495,415
Percent	11.7	27	20.6	8.5	32.3	100
Hawaii						
Number	51,020	213,700	154,739	80,312	247,029	746,800
Percent	6.8	28.6	20.7	10.8	33.1	100
Idaho						
Number	71,788	239,733	219,961	89,382	230,126	850,990
Percent	8.4	28.2	25.8	10.5	27	100
Illinois						
Number	666,368	1,633,406	1,414,473	590,394	2,460,793	6,765,434
Percent	9.8	24.1	20.9	8.7	36.4	100
Indiana						
Number	350,455	1,049,182	701,039	344,576	969,592	3,414,844
Percent	10.3	30.7	20.5	10.1	28.4	100
Iowa						
Number	111,946	414,190	331,470	215,149	493,570	1,566,325
Percent	7.1	26.4	21.2	13.7	31.5	100

(continued)

Table 5 (continued)
Educational Attainment and Distribution
for Population Ages 25-64, by State, 2017
(number; percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher	Total
Kansas						
Number	125,864	337,157	333,041	145,719	511,530	1,453,311
Percent	8.7	23.2	22.9	10	35.2	100
Kentucky						
Number	262,738	747,012	506,075	210,631	584,071	2,310,527
Percent	11.4	32.3	21.9	9.1	25.3	100
Louisiana						
Number	334,565	789,165	534,915	163,054	599,923	2,421,622
Percent	13.8	32.6	22.1	6.7	24.8	100
Maine						
Number	40,132	213,795	135,267	81,885	235,802	706,881
Percent	5.7	30.2	19.1	11.6	33.4	100
Maryland						
Number	299,526	748,908	627,401	240,344	1,354,434	3,270,613
Percent	9.2	22.9	19.2	7.3	41.4	100
Massachusetts						
Number	283,188	841,019	574,198	282,047	1,702,474	3,682,926
Percent	7.7	22.8	15.6	7.7	46.2	100
Michigan						
Number	417,774	1,407,533	1,237,643	527,103	1,573,645	5,163,698
Percent	8.1	27.3	24	10.2	30.5	100
Minnesota						
Number	182,153	642,665	615,151	375,042	1,107,190	2,922,201
Percent	6.2	22	21.1	12.8	37.9	100
Mississippi						
Number	197,888	445,148	338,676	176,351	333,090	1,491,153
Percent	13.3	29.9	22.7	11.8	22.3	100
Missouri						
Number	289,430	884,775	709,973	281,150	975,105	3,140,433
Percent	9.2	28.2	22.6	9	31.1	100
Montana						
Number	36,718	141,953	130,698	53,655	170,468	533,492
Percent	6.9	26.6	24.5	10.1	32	100
Nebraska						
Number	78,750	230,297	225,277	112,988	316,364	963,676
Percent	8.2	23.9	23.4	11.7	32.8	100
Nevada						
Number	215,382	466,138	393,678	130,025	399,558	1,604,781
Percent	13.4	29	24.5	8.1	24.9	100
New Hampshire						
Number	41,539	194,356	133,057	77,052	277,512	723,516
Percent	5.7	26.9	18.4	10.6	38.4	100
New Jersey						
Number	389,804	1,219,050	809,854	360,693	2,047,899	4,827,300
Percent	8.1	25.3	16.8	7.5	42.4	100
New Mexico						
Number	137,434	281,998	255,617	96,644	273,957	1,045,650
Percent	13.1	27	24.4	9.2	26.2	100

(continued)

Table 5 (continued)
Educational Attainment and Distribution
for Population Ages 25-64, by State, 2017
(number; percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher	Total
New York						
Number	1,240,747	2,622,968	1,678,046	1,007,223	4,095,467	10,644,451
Percent	11.7	24.6	15.8	9.5	38.5	100
North Carolina						
Number	570,478	1,302,521	1,172,864	545,080	1,769,696	5,360,639
Percent	10.6	24.3	21.9	10.2	33	100
North Dakota						
Number	18,930	96,677	85,440	58,499	126,811	386,357
Percent	4.9	25	22.1	15.1	32.8	100
Ohio						
Number	511,586	1,873,819	1,267,325	592,538	1,801,051	6,046,319
Percent	8.5	31	21	9.8	29.8	100
Oklahoma						
Number	224,850	616,966	472,045	166,876	510,897	1,991,634
Percent	11.3	31	23.7	8.4	25.7	100
Oregon						
Number	203,304	491,142	537,760	208,343	756,451	2,197,000
Percent	9.3	22.4	24.5	9.5	34.4	100
Pennsylvania						
Number	523,860	2,149,719	1,095,203	634,527	2,286,536	6,689,845
Percent	7.8	32.1	16.4	9.5	34.2	100
Rhode Island						
Number	55,289	158,753	102,153	45,961	197,905	560,061
Percent	9.9	28.3	18.2	8.2	35.3	100
South Carolina						
Number	287,910	751,091	538,183	271,058	727,509	2,575,751
Percent	11.2	29.2	20.9	10.5	28.2	100
South Dakota						
Number	31,233	123,019	98,537	55,098	126,025	433,912
Percent	7.2	28.4	22.7	12.7	29	100
Tennessee						
Number	375,681	1,110,875	740,469	282,971	1,011,437	3,521,433
Percent	10.7	31.5	21	8	28.7	100
Texas						
Number	2,254,849	3,649,265	3,205,344	1,138,496	4,442,669	14,690,623
Percent	15.3	24.8	21.8	7.7	30.2	100
Utah						
Number	118,786	319,809	376,988	153,891	518,761	1,488,235
Percent	8	21.5	25.3	10.3	34.9	100
Vermont						
Number	21,818	97,077	52,131	30,472	123,099	324,597
Percent	6.7	29.9	16.1	9.4	37.9	100
Virginia						
Number	396,874	1,036,541	856,519	380,144	1,836,378	4,506,456
Percent	8.8	23	19	8.4	40.7	100
Washington						
Number	335,652	851,753	925,256	424,344	1,454,187	3,991,192
Percent	8.4	21.3	23.2	10.6	36.4	100

(continued)

Table 5 (continued)
Educational Attainment and Distribution
for Population Ages 25-64, by State, 2017
(number; percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher	Total
West Virginia						
Number	97,758	382,141	177,512	74,655	198,657	930,723
Percent	10.5	41.1	19.1	8	21.3	100
Wisconsin						
Number	199,688	835,423	628,239	363,809	970,024	2,997,183
Percent	6.7	27.9	21	12.1	32.4	100
Wyoming						
Number	20,293	86,727	74,448	33,837	82,711	298,016
Percent	6.8	29.1	25	11.4	27.8	100
United States						
Number	18,623,903	44,171,652	35,262,849	15,620,809	56,829,678	170,508,891
Percent	10.9	25.9	20.7	9.2	33.3	100

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2007 and 2017 1-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Table 6
Change in Educational Attainment and Distribution for Population Ages 25-64, by State, 2007-2017 (percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher
Alabama					
Distribution change	-3.7	-1.7	0.1	1.5	3.8
Percent change	-20.7	-2.2	3.7	23.5	19.9
Alaska					
Distribution change	-0.6	-0.9	-0.5	-0.4	2.3
Percent change	-0.4	4.4	5.4	3.3	16.8
Arizona					
Distribution change	-2.4	-2.5	1.2	0.5	3.3
Percent change	-9.4	-2.4	13.0	13.2	21.5
Arkansas					
Distribution change	-3.2	-2.1	0.3	1.3	3.7
Percent change	-19.1	-3.3	4.3	21.5	21.2
California					
Distribution change	-2.9	-1.8	1.2	-0.2	3.7
Percent change	-7.3	0.8	16.0	6.7	23.0
Colorado					
Distribution change	-1.7	-2.9	-1.3	0.4	5.4
Percent change	-7.6	-1.3	5.8	18.1	29.1
Connecticut					
Distribution change	-0.7	-2.1	-0.3	0.4	2.8
Percent change	-8.3	-7.4	-1.6	5.1	7.9
Delaware					
Distribution change	-1.5	-1.2	-1.6	-1.5	5.7
Percent change	-7.1	4.8	0.5	-8.5	31.5
District of Columbia					
Distribution change	-4	-5		0	9.8
Percent change	-16.6	-4.2	16.1	27.7	49.3
Florida					
Distribution change	-2.1	-2.4	0.3	1.4	2.7
Percent change	-4.9	5.1	15.8	30.1	25.0
Georgia					
Distribution change	-2.8	-3.2	1	1.6	3.5
Percent change	-13.7	-4.4	12.0	31.0	19.9
Hawaii					
Distribution change	-0.1	0.3	-1.6	-1.1	2.5
Percent change	5.8	8.9	0.1	-3.0	16.2
Idaho					
Distribution change	-1.7	-0.1	-0.3	0.9	1
Percent change	-7.3	10.0	9.6	21.1	15.1
Illinois					
Distribution change	-1.7	-3.3	0.1	0.6	4.1
Percent change	-14.7	-12.4	0.2	6.8	12.1
Indiana					
Distribution change	-1.1	-5.2	0.1	2	4.2
Percent change	-8.5	-12.9	2.3	25.9	19.4
Iowa					
Distribution change	-0.4	-6.6	-0.3	2.6	4.6
Percent change	-3.8	-18.5	-0.2	26.2	19.0

(continued)

Table 6 (Continued)
Change in Educational Attainment and Distribution for Population Ages 25-64, by State, 2007-2017
(percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher
Kansas					
Distribution change	-0.6	-4.9	0.2	1.5	3.7
Percent change	-5.6	-16.4	2.2	19.1	13.1
Kentucky					
Distribution change	-3.7	-3.7	2.1	1.9	3.5
Percent change	-24.2	-9.3	11.5	27.7	16.9
Louisiana					
Distribution change	-3.3	-3.3	1.7	1.5	3.4
Percent change	-11.7	-1.1	17.9	41.9	26.5
Maine					
Distribution change	-1.3	-5.5	0	1.7	5.1
Percent change	-21.2	-17.4	-2.1	14.2	15.3
Maryland					
Distribution change	-0.7	-3.9	0.4	0.1	4
Percent change	-0.9	-8.3	9.4	9.6	18.7
Massachusetts					
Distribution change	-1.2	-2.5	-0.4	-0.4	4.5
Percent change	-9.7	-5.1	2.3	-1.2	16.4
Michigan					
Distribution change	-1.5	-3.9	0.5	1.2	3.8
Percent change	-19.3	-16.1	-1.9	9.5	9.5
Minnesota					
Distribution change	-0.1	-4.5	-1.5	1.5	4.6
Percent change	2.4	-13.6	-3.1	17.9	18.2
Mississippi					
Distribution change	-4.3	-2.3	1	3.5	2.1
Percent change	-23.7	-6.3	5.7	44.4	11.7
Missouri					
Distribution change	-1.8	-4	0.5	1.6	3.7
Percent change	-14.8	-11.4	3.7	23.1	14.7
Montana					
Distribution change		-5	0.9	1.1	4.1
Percent change	-8.3	-11.0	9.8	18.2	21.1
Nebraska					
Distribution change	0.5	-4.5	0	0.8	3.1
Percent change	14.1	-9.8	7.2	15.3	18.4
Nevada					
Distribution change	-2.1	-1.7	0.4	0.5	2.9
Percent change	-1.3	8.2	16.6	21.4	29.2
New Hampshire					
Distribution change	-1.4	-2.8	-0.5	0.6	4.2
Percent change	-20.7	-10.8	-4.0	4.8	10.8
New Jersey					
Distribution change	-1.9	-4.5	0.1	0.6	5.7
Percent change	-17.4	-13.4	2.5	10.8	18.0
New Mexico					
Distribution change	-2.2	-2	1.6	1.4	1.2
Percent change	-12.1	-4.7	9.8	21.6	7.5

(continued)

Table 6 (Continued)
Change in Educational Attainment and Distribution for Population Ages 25-64, by State, 2007-2017
(percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher
New York					
Distribution change	-1.4	-3.1	0.1	0.3	4.1
Percent change	-8.5	-8.7	3.4	5.8	14.9
North Carolina					
Distribution change	-3.2	-4.9	1.3	1.2	5.6
Percent change	-14.7	-8.0	17.5	24.2	32.9
North Dakota					
Distribution change	-0.4	-2.1	-1.1	1.7	1.8
Percent change	11.7	10.9	14.9	36.2	27.3
Ohio					
Distribution change	-1.3	-4.4	1	1.4	3.3
Percent change	-14.0	-13.2	4.1	15.1	11.6
Oklahoma					
Distribution change	-1.5	-1.5	0.4	1.1	1.6
Percent change	-5.5	2.0	8.9	22.4	13.9
Oregon					
Distribution change	-1.3	-3.7	0.2	0.7	4.2
Percent change	-6.6	-8.6	7.9	15.7	21.8
Pennsylvania					
Distribution change	-1.6	-4.9	0.2	1	5.3
Percent change	-14.6	-10.9	3.7	14.0	21.4
Rhode Island					
Distribution change	-3.7	0.2	1.4	-0.3	2.3
Percent change	-27.4	0.5	8.3	-4.0	6.9
South Carolina					
Distribution change	-3.6	-3.5	2.1	1.7	3.2
Percent change	-16.4	-1.5	22.9	32.2	24.8
South Dakota					
Distribution change	-1.5	-4.7	2.7	2.1	1.4
Percent change	-10.6	-7.4	23.0	29.9	13.9
Tennessee					
Distribution change	-4.1	-2.8	0.2	1.6	5.1
Percent change	-23.8	-3.0	6.6	32.1	28.4
Texas					
Distribution change	-3.7	-1.8	0.6	0.8	3.8
Percent change	-4.7	10.0	21.4	33.0	35.1
Utah					
Distribution change	-0.8	-4.5	-0.2	0.3	5.2
Percent change	5.8	-3.2	16.7	21.6	37.6
Vermont					
Distribution change	0	-1.5	-0.6	-0.8	2.8
Percent change	-6.0	-10.5	-9.5	-13.8	1.4
Virginia					
Distribution change	-2.3	-3.2	-0.4	1.2	4.6
Percent change	-14.8	-5.5	5.4	25.6	21.6
Washington					
Distribution change	-0.7	-3.1	-1.1	0	4.8
Percent change	2.8	-2.3	6.7	11.9	28.9

(continued)

Table 6 (Continued)
Change in Educational Attainment and Distribution
for Population Ages 25-64, by State, 2007-2017
(percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher
West Virginia					
Distribution change	-4	0	0.6	1	2.4
Percent change	-30.8	-5.0	-1.7	9.0	7.3
Wisconsin					
Distribution change	-1.3	-5.1	0.5	1.6	4.5
Percent change	-16.8	-15.3	2.6	16.2	16.2
Wyoming					
Distribution change	0	-0.5	-1.5	-0.4	2.5
Percent change	7.6	5.5	0.9	3.0	17.8
United States					
Distribution change	-2.1	-3.2	0.5	0.9	3.9
Percent change	-10.3	-5.2	8.9	17.2	20.7

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2007 and 2017 1-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Table 7
Educational Attainment and Distribution
for Population Ages 25-64, by State, 2013-2017
(number; percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher	Total
Alabama						
Number	327,021	751,430	568,473	229,917	638,760	2,515,601
Percent	13	29.9	22.6	9.1	25.4	100
Alaska						
Number	27,792	111,029	112,463	33,857	115,751	400,892
Percent	6.9	27.7	28.1	8.4	28.9	100
Arizona						
Number	465,706	802,350	864,290	313,062	968,028	3,413,436
Percent	13.6	23.5	25.3	9.2	28.4	100
Arkansas						
Number	188,686	513,120	349,803	113,584	344,789	1,509,982
Percent	12.5	34	23.2	7.5	22.8	100
California						
Number	3,492,608	4,272,807	4,539,182	1,637,391	6,862,660	20,804,648
Percent	16.8	20.5	21.8	7.9	33	100
Colorado						
Number	254,697	612,334	641,592	265,440	1,187,296	2,961,359
Percent	8.6	20.7	21.7	9	40.1	100
Connecticut						
Number	152,341	491,327	336,348	153,811	771,231	1,905,058
Percent	8	25.8	17.7	8.1	40.5	100
Delaware						
Number	47,527	145,932	97,084	41,381	159,202	491,126
Percent	9.7	29.7	19.8	8.4	32.4	100
District of Columbia						
Number	33,102	64,716	50,011	12,405	237,955	398,189
Percent	8.3	16.3	12.6	3.1	59.8	100
Florida						
Number	1,170,025	2,963,681	2,159,425	1,145,807	3,029,891	10,468,829
Percent	11.2	28.3	20.6	10.9	28.9	100
Georgia						
Number	670,496	1,456,771	1,155,847	436,473	1,673,986	5,393,573
Percent	12.4	27	21.4	8.1	31	100
Hawaii						
Number	46,873	201,338	167,694	84,080	246,450	746,435
Percent	6.3	27	22.5	11.3	33	100
Idaho						
Number	77,243	222,666	217,390	84,695	220,011	822,005
Percent	9.4	27.1	26.4	10.3	26.8	100
Illinois						
Number	689,068	1,662,278	1,451,507	587,341	2,428,163	6,818,357
Percent	10.1	24.4	21.3	8.6	35.6	100
Indiana						
Number	354,686	1,073,159	730,241	325,632	918,243	3,401,961
Percent	10.4	31.5	21.5	9.6	27	100
Iowa						
Number	109,701	434,224	341,500	209,539	472,505	1,567,469
Percent	7	27.7	21.8	13.4	30.1	100

(continued)

Table 7 (Continued)
Educational Attainment and Distribution
for Population Ages 25-64, by State, 2013-2017
(number; percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher	Total
Kansas						
Number	132,422	347,074	352,073	134,412	493,671	1,459,652
Percent	9.1	23.8	24.1	9.2	33.8	100
Kentucky						
Number	285,575	741,983	506,631	211,722	568,708	2,314,619
Percent	12.3	32.1	21.9	9.1	24.6	100
Louisiana						
Number	349,661	805,026	538,226	158,256	585,592	2,436,761
Percent	14.3	33	22.1	6.5	24	100
Maine						
Number	41,054	222,501	144,805	80,986	221,540	710,886
Percent	5.8	31.3	20.4	11.4	31.2	100
Maryland						
Number	291,445	780,775	637,230	228,143	1,308,990	3,246,583
Percent	9	24	19.6	7	40.3	100
Massachusetts						
Number	292,128	845,481	587,284	293,002	1,639,116	3,657,011
Percent:	8	23.1	16.1	8	44.8	100
Michigan						
Number	436,026	1,406,329	1,266,857	524,823	1,515,112	5,149,147
Percent	8.5	27.3	24.6	10.2	29.4	100
Minnesota						
Number	182,212	652,914	629,873	369,204	1,064,394	2,898,597
Percent	6.3	22.5	21.7	12.7	36.7	100
Mississippi						
Number	217,200	455,447	359,571	157,645	329,552	1,519,415
Percent	14.3	30	23.7	10.4	21.7	100
Missouri						
Number	291,633	904,787	728,497	277,083	940,727	3,142,727
Percent	9.3	28.8	23.2	8.8	29.9	100
Montana						
Number	33,831	147,750	131,588	53,650	161,810	528,629
Percent	6.4	27.9	24.9	10.1	30.6	100
Nebraska						
Number	82,043	225,103	221,671	109,307	315,624	953,748
Percent	8.6	23.6	23.2	11.5	33.1	100
Nevada						
Number	218,559	439,762	398,154	128,248	362,878	1,547,601
Percent:	14.1	28.4	25.7	8.3	23.4	100
New Hampshire						
Number	40,973	192,668	139,949	77,731	269,219	720,540
Percent:	5.7	26.7	19.4	10.8	37.4	100
New Jersey						
Number	429,685	1,255,024	826,066	340,655	1,957,115	4,808,545
Percent:	8.9	26.1	17.2	7.1	40.7	100
New Mexico						
Number	149,779	279,819	255,361	95,250	273,559	1,053,768
Percent	14.2	26.6	24.2	9	26	100

(continued)

Table 7 (Continued)
Educational Attainment and Distribution
for Population Ages 25-64, by State, 2013-2017
(number; percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher	Total
New York						
Number	1,280,551	2,632,807	1,744,838	1,003,273	3,993,690	10,655,159
Percent	12	24.7	16.4	9.4	37.5	100
North Carolina						
Number	613,006	1,295,074	1,179,730	530,942	1,649,515	5,268,267
Percent	11.6	24.6	22.4	10.1	31.3	100
North Dakota						
Number	19,699	91,669	88,948	59,364	117,599	377,279
Percent	5.2	24.3	23.6	15.7	31.2	100
Ohio						
Number	520,899	1,901,809	1,285,161	583,392	1,753,409	6,044,670
Percent	8.6	31.5	21.3	9.7	29	100
Oklahoma						
Number	231,240	604,253	472,978	163,771	505,849	1,978,091
Percent	11.7	30.5	23.9	8.3	25.6	100
Oregon						
Number	207,364	477,674	553,290	201,843	702,143	2,142,314
Percent	9.7	22.3	25.8	9.4	32.8	100
Pennsylvania						
Number	556,470	2,201,550	1,132,446	624,969	2,192,007	6,707,442
Percent	8.3	32.8	16.9	9.3	32.7	100
Rhode Island						
Number	57,464	148,304	110,503	49,612	193,217	559,100
Percent	10.3	26.5	19.8	8.9	34.6	100
South Carolina						
Number	301,413	731,311	544,083	253,036	699,278	2,529,121
Percent	11.9	28.9	21.5	10	27.6	100
South Dakota						
Number	29,239	121,573	95,992	56,004	126,569	429,377
Percent	6.8	28.3	22.4	13	29.5	100
Tennessee						
Number	392,424	1,107,697	742,797	268,860	953,869	3,465,647
Percent	11.3	32	21.4	7.8	27.5	100
Texas						
Number	2,301,887	3,533,006	3,189,346	1,048,270	4,167,827	14,240,336
Percent	16.2	24.8	22.4	7.4	29.3	100
Utah						
Number	116,943	319,204	381,839	150,203	466,032	1,434,221
Percent	8.2	22.3	26.6	10.5	32.5	100
Vermont						
Number	22,475	94,836	60,879	28,683	122,292	329,165
Percent	6.8	28.8	18.5	8.7	37.2	100
Virginia						
Number	416,644	1,048,603	899,276	360,891	1,766,242	4,491,656
Percent	9.3	23.3	20	8	39.3	100
Washington						
Number	343,664	836,921	926,006	407,196	1,354,047	3,867,834
Percent	8.9	21.6	23.9	10.5	35	100

(continued)

Table 7 (Continued)
Educational Attainment and Distribution
for Population Ages 25-64, by State, 2013-2017
(number; percent)

State	No High School Diploma	High School Grad, No College	Some College	Associate Degree	Bachelor's Degree and Higher	Total
West Virginia						
Number	108,456	381,306	187,434	75,262	206,075	958,533
Percent	11.3	39.8	19.6	7.9	21.5	100
Wisconsin						
Number	214,795	853,784	648,439	361,144	934,430	3,012,592
Percent	7.1	28.3	21.5	12	31	100
Wyoming						
Number	19,029	85,188	81,136	36,561	82,627	304,541
Percent	6.2	28	26.6	12	27.1	100
United States						
Number	19,335,460	43,948,174	35,831,807	15,177,808	54,269,245	168,562,494
Percent	11.5	26.1	21.3	9	32.2	100

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 4
Educational Attainment for Population Ages 25-64,
Georgia and the United States, 2013-2017

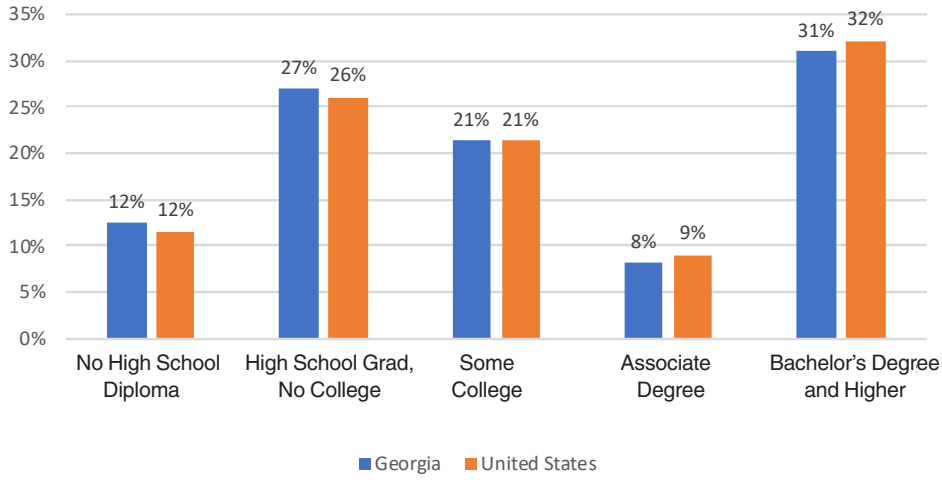


Table 8
Educational Attainment with Percent Distribution
By Age Group, in the United States and Georgia, 2013-2017

Education Level	United States Age 25-34	United States Age 35-44	United States Age 45-64	United States Total 25-64	Georgia Age 25-34	Georgia Age 35-44	Georgia Age 45-64	Georgia Total 25-64
No high school diploma								
Number	4,519,449	4,902,655	9,913,356	19,335,460	177,356	176,123	317,017	670,496
Percent	10.3	12.0	11.8	11.5	12.7	12.8	12.1	12.4
High school grad, no college								
Number	10,491,471	9,711,124	23,745,579	43,948,174	354,486	339,575	762,710	1,456,771
Percent	23.9	23.8	28.3	26.1	25.3	24.7	29.1	27
Some college								
Number	10,001,088	8,301,826	17,528,893	35,831,807	331,578	284,686	539,583	1,155,847
Percent	22.7	20.4	20.9	21.3	23.7	20.7	20.6	21.4
Associate degree								
Number	3,908,390	3,747,172	7,522,246	15,177,808	111,190	115,311	209,972	436,473
Percent	8.9	9.2	9.0	9.0	8	8.4	8	8.1
Bachelor's degree and higher								
Number	15,055,119	14,072,363	25,141,763	54,269,245	423,965	461,492	788,529	1,673,986
Percent	34.2	34.5	30.0	32.2	30.3	33.5	30.1	31
Total								
Number	43,975,517	40,735,140	83,851,837	168,562,494	1,398,575	1,377,187	2,617,811	5,393,573
Percent	100.0	100.0	100.0	100.0	100	100	100	100

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Table 9
Educational Attainment by Age Group for Population Ages 25-64
in the United States and Georgia, 2013-2017

Age Group	Educational Attainment	United States	Georgia	Georgia - US Difference
		Percent		
25-34	High school or higher	89.7	87.3	-2.4
	Bachelor's degree or higher	34.2	30.3	-3.9
35-44	High school or higher	87.9	87.3	-0.6
	Bachelor's degree or higher	34.5	33.5	
45-64	High school or higher	88.2	87.8	-0.4
	Bachelor's degree or higher	30	30.1	0.1
25-64 Total	High school or higher	88.6	87.5	-1.1
	Bachelor's degree or higher	32.2	31.0	-1.2

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Table 10
Educational Attainment of Population Ages 25-64
in Georgia's Metropolitan and Nonmetropolitan Counties, 2013-2017

Area	Total	No High School Diploma	High School Graduate*	Some College or Associate Degree	Bachelor's Degree or Higher
Metro counties	4,495,986	506,417	1,117,716	1,327,417	1,544,436
Nonmetro counties	897,410	158,464	334,972	262,219	141,755
Total	5,393,396	664,881	1,452,688	1,589,636	1,686,191
			Percent		
Metro counties	100	11.3	24.9	29.5	34.4
Nonmetro counties	100	17.7	37.3	29.2	15.8
Total	100	12.3	26.9	29.5	31.3

*Includes equivalency.

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Table 11
Educational Attainment for Population Ages 25-64
in Georgia's Local Workforce Development Areas, 2013-2017
(estimated numbers)

Local Workforce Development Area	Total	No High School Diploma	High School Graduate*	Some College or Associate Degree	Bachelor's Degree or Higher
1 Northwest Georgia	459,403	81,684	152,071	140,830	84,818
2 Georgia Mountains	342,011	51,261	87,929	94,716	108,105
4 Cobb County	409,476	34,609	70,471	110,391	194,005
5 DeKalb County	415,509	43,129	83,984	108,594	179,802
6 Fulton County	566,170	41,963	98,341	131,527	294,339
7 Atlanta Regional	1,049,757	115,709	262,912	321,849	349,287
8 Three Rivers	259,783	36,340	90,464	78,738	54,241
9 Northeast Georgia	304,869	41,929	93,877	92,354	76,709
10 Macon-Bibb	77,502	9,362	24,444	23,195	20,501
11 Middle Georgia	176,694	19,647	57,435	60,074	39,538
12 Central Savannah River Area	124,196	19,416	39,688	40,522	24,570
13 East Central Georgia	121,794	12,946	37,169	38,282	33,397
14 Lower Chattahoochee	138,062	15,456	37,958	48,747	35,901
15 Middle Flint	53,500	10,077	20,141	16,536	6,746
16 Heart of Georgia	156,082	29,567	64,601	41,098	20,816
17 Southwest Georgia	177,829	31,441	59,043	56,297	31,048
18 Southern Georgia	206,137	35,408	74,759	62,278	33,692
20 Coastal Georgia	354,622	34,937	97,401	123,608	98,676
Georgia	5,393,396	664,881	1,452,688	1,589,636	1,686,191

*Includes equivalency.

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Table 12
Distribution and Supply of Workers by Skill Level
in Georgia's Local Workforce Development Areas, 2013-2017
(percent)

Local Workforce Development Area	Skill Level Distribution*			
	Low	Basic	Mid-level	High-level
1 Northwest Georgia	17.8	33.1	30.7	18.5
2 Georgia Mountains	15.0	25.7	27.7	31.6
4 Cobb County	8.5	17.2	27.0	47.4
5 DeKalb County	10.4	20.2	26.1	43.3
6 Fulton County	7.4	17.4	23.2	52.0
7 Atlanta Regional	11.0	25.0	30.7	33.3
8 Three Rivers	14.0	34.8	30.3	20.9
9 Northeast Georgia	13.8	30.8	30.3	25.2
10 Macon-Bibb	12.1	31.5	29.9	26.5
11 Middle Georgia	11.1	32.5	34.0	22.4
12 Central Savannah River Area	15.6	32.0	32.6	19.8
13 East Central Georgia	10.6	30.5	31.4	27.4
14 Lower Chattahoochee	11.2	27.5	35.3	26.0
15 Middle Flint	18.8	37.6	30.9	12.6
16 Heart of Georgia	18.9	41.4	26.3	13.3
17 Southwest Georgia	17.7	33.2	31.7	17.5
18 Southern Georgia	17.2	36.3	30.2	16.3
20 Coastal Georgia	9.9	27.5	34.9	27.8
Georgia	12.3	26.9	29.5	31.3

(continued)

Table 12 (Continued)
Distribution and Supply of Workers by Skill Level
in Georgia's Local Workforce Development Areas, 2013-2017

Local Workforce Development Area	Skill Supply** Low	Basic	Mid-level	High-level
1 Northwest Georgia	Top	Fairly high	Fairly high	Fairly low
2 Georgia Mountains	Fairly high	Fairly low	Fairly low	Fairly high
4 Cobb County	Low	Low	Low	Top
5 DeKalb County	Low	Low	Low	Top
6 Fulton County	Low	Low	Low	Top
7 Atlanta Regional	Fairly low	Low	Fairly high	Top
8 Three Rivers	Fairly high	Top	Fairly low	Fairly low
9 Northeast Georgia	Fairly high	Fairly low	Fairly low	Fairly low
10 Macon-Bibb	Fairly low	Fairly high	Fairly low	Fairly high
11 Middle Georgia	Fairly low	Fairly high	Top	Fairly low
12 Central Savannah River Area	Fairly high	Fairly high	Top	Fairly low
13 East Central Georgia	Fairly low	Fairly low	Fairly high	Fairly high
14 Lower Chattahoochee	Fairly low	Fairly low	Top	Fairly high
15 Middle Flint	Top	Top	Fairly high	Low
16 Heart of Georgia	Top	Top	Low	Low
17 Southwest Georgia	Top	Fairly high	Fairly high	Low
18 Southern Georgia	Fairly high	Top	Fairly low	Low
20 Coastal Georgia	Low	Fairly low	Top	Fairly high

*Skill levels definitions: Low: No high school diploma; Basic: High school graduate (includes equivalency); Mid-level: Some college or associate degree, High: Bachelor's degree or higher

**Skill supply distribution based on LWDA quartile distribution: Low: below first quartile, Fairly low: between first quartile and median, Fairly high: between median and third quartile, Top: above third quartile.

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 5
Local Workforce Development Areas
By Highest Concentration of Skills

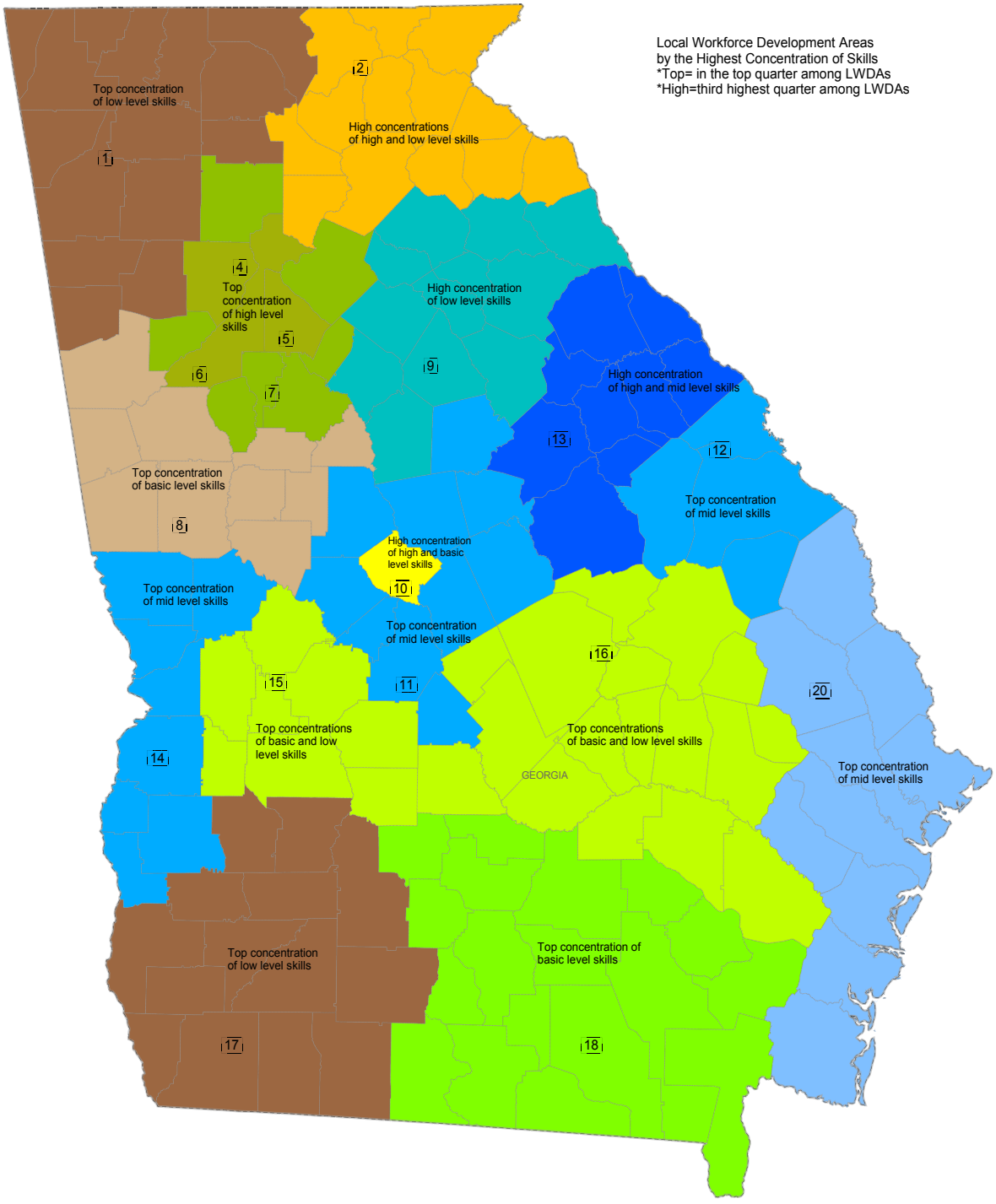


Table 13
Educational Attainment for Population Ages 25-64
By County in Georgia, 2013-2017
(estimated numbers)

County	LWDA	Total	No High School Diploma	High School Graduate*	Some College or Associate Degree	Bachelor's Degree or Higher
Georgia		5,393,396	664,881	1,452,688	1,589,636	1,686,191
Appling	16	9,371	2,033	3,781	2,396	1,161
Atkinson	18	4,204	1,201	1,703	941	359
Bacon	18	5,790	1,012	2,423	1,698	657
Baker	17	1,689	335	631	545	178
Baldwin	11	21,505	3,180	8,005	6,029	4,291
Banks	2	9,580	2,047	3,973	2,380	1,180
Barrow	9	40,180	6,179	13,350	13,480	7,171
Bartow	1	54,898	8,726	18,605	16,401	11,166
Ben Hill	18	8,682	1,540	3,463	2,745	934
Berrien	18	9,796	1,757	4,146	2,821	1,072
Bibb	10	77,502	9,362	24,444	23,195	20,501
Bleckley	16	5,879	699	2,554	1,565	1,061
Brantley	18	9,639	1,729	4,696	2,497	717
Brooks	18	8,074	1,389	2,985	2,688	1,012
Bryan	20	18,482	1,244	4,596	6,377	6,265
Bulloch	20	32,671	3,837	8,395	10,917	9,522
Burke	12	11,470	1,875	4,342	3,966	1,287
Butts	8	12,993	2,873	5,477	3,268	1,375
Calhoun	17	3,954	933	1,626	1,031	364
Camden	20	26,288	1,986	8,012	10,149	6,141
Candler	16	5,409	1,347	1,819	1,533	710
Carroll	8	57,118	8,894	19,387	17,333	11,504
Catoosa	1	34,385	4,102	10,272	12,924	7,087
Charlton	18	7,127	1,499	3,162	1,864	602
Chatham	20	149,712	13,862	35,885	50,702	49,263
Chattahoochee	14	4,539	241	1,159	1,542	1,597
Chattooga	1	13,049	3,020	5,210	3,458	1,361
Cherokee	7	127,163	10,720	28,615	40,126	47,702
Clarke	9	55,955	7,155	11,464	13,936	23,400
Clay	14	1,407	186	657	467	97
Clayton	7	145,438	21,941	47,108	47,622	28,767
Clinch	18	3,442	762	1,153	1,047	480
Cobb	4	409,476	34,609	70,471	110,391	194,005
Coffee	18	22,268	4,551	8,335	6,133	3,249
Colquitt	17	23,014	6,063	8,614	5,439	2,898
Columbia	13	76,909	4,732	17,599	26,770	27,808
Cook	18	8,646	1,612	3,057	2,638	1,339
Coweta	8	73,727	6,840	21,458	23,029	22,400
Crawford	11	6,678	728	2,377	2,555	1,018
Crisp	15	11,267	1,632	4,764	3,335	1,536
Dade	1	8,258	1,459	2,769	2,891	1,139
Dawson	2	12,178	1,499	3,544	3,538	3,597
Decatur	17	13,650	2,523	4,720	4,529	1,878
DeKalb	5	415,509	43,129	83,984	108,594	179,802
Dodge	16	11,449	1,709	4,793	3,243	1,704
Dooly	15	7,638	1,744	3,044	2,152	698
Dougherty	17	45,196	6,624	12,969	16,167	9,436

(continued)

Table 13 (Continued)
Educational Attainment for Population Ages 25-64
By County in Georgia, 2013-2017
(estimated numbers)

County	LWDA	Total	No High School Diploma	High School Graduate*	Some College or Associate Degree	Bachelor's Degree or Higher
Douglas	7	75,125	7,140	22,039	24,265	21,681
Early	17	5,044	651	1,876	1,555	962
Echols	18	2,194	689	704	639	162
Effingham	20	30,534	3,348	11,027	9,881	6,278
Elbert	9	9,752	1,821	4,378	2,522	1,031
Emanuel	16	11,362	1,968	4,940	2,959	1,495
Evans	16	5,441	1,134	2,191	1,261	855
Fannin	1	12,050	1,269	4,679	3,951	2,151
Fayette	7	56,030	2,401	9,824	15,449	28,356
Floyd	1	48,375	8,883	14,996	14,327	10,169
Forsyth	2	112,693	7,558	17,017	28,118	60,000
Franklin	2	11,005	2,116	4,300	3,104	1,485
Fulton	6	566,170	41,963	98,341	131,527	294,339
Gilmer	1	14,890	2,973	5,271	4,141	2,505
Glascock	13	1,553	274	654	478	147
Glynn	20	42,437	5,131	11,895	13,811	11,600
Gordon	1	29,948	6,510	10,208	9,104	4,126
Grady	17	12,744	2,463	4,455	4,029	1,797
Greene	9	7,916	1,480	2,966	1,842	1,628
Gwinnett	7	484,081	58,480	108,307	142,326	174,968
Habersham	2	21,610	4,173	7,326	5,849	4,262
Hall	2	98,126	22,304	25,998	27,607	22,217
Hancock	13	4,927	1,326	2,288	993	320
Haralson	1	14,931	2,597	5,557	4,499	2,278
Harris	14	17,451	1,377	4,006	7,171	4,897
Hart	2	12,824	2,205	5,099	3,955	1,565
Heard	8	6,066	995	2,818	1,560	693
Henry	7	115,738	9,953	32,967	37,963	34,855
Houston	11	79,770	6,076	21,593	30,953	21,148
Irwin	18	4,673	766	1,898	1,428	581
Jackson	9	33,851	5,378	10,731	10,542	7,200
Jasper	9	7,167	1,594	2,773	2,083	717
Jeff Davis	16	7,471	1,575	2,597	2,560	739
Jefferson	12	8,011	1,648	3,425	2,102	836
Jenkins	13	4,441	812	1,973	1,297	359
Johnson	16	5,274	1,008	2,436	1,337	493
Jones	11	14,879	1,510	5,459	4,655	3,255
Lamar	8	8,709	1,067	3,257	2,667	1,718
Lanier	18	5,518	873	1,849	1,811	985
Laurens	16	23,904	3,372	10,501	6,244	3,787
Lee	17	15,833	1,508	4,432	5,572	4,321
Liberty	20	30,548	2,220	9,206	13,017	6,105
Lincoln	13	3,999	594	1,827	1,149	429
Long	20	9,406	1,107	2,793	3,968	1,538
Lowndes	18	53,847	7,430	15,363	17,056	13,998
Lumpkin	2	14,657	2,456	3,960	4,441	3,800
Macon	15	7,559	1,850	2,585	2,549	575
Madison	9	15,056	2,360	5,257	4,670	2,769

(continued)

Table 13 (Continued)
Educational Attainment for Population Ages 25-64
By County in Georgia, 2013-2017
(estimated numbers)

County	LWDA	Total	No High School Diploma	High School Graduate*	Some College or Associate Degree	Bachelor's Degree or Higher
Marion	15	4,558	859	1,700	1,438	561
McDuffie	13	10,603	1,745	4,163	2,936	1,759
McIntosh	20	7,264	1,143	2,575	2,724	822
Meriwether	8	10,718	2,080	4,336	3,141	1,161
Miller	17	2,872	453	1,006	1,018	395
Mitchell	17	11,859	2,642	4,592	3,321	1,304
Monroe	11	14,339	1,857	5,201	3,625	3,656
Montgomery	16	4,567	747	1,788	1,379	653
Morgan	9	9,070	1,049	3,257	2,801	1,963
Murray	1	20,742	6,441	7,692	4,705	1,904
Muscogee	14	103,615	11,227	27,581	36,808	27,999
Newton	9	54,286	7,134	16,959	19,042	11,151
Oconee	9	18,404	860	3,172	4,908	9,464
Oglethorpe	9	7,857	1,582	2,695	2,320	1,260
Paulding	1	82,521	6,562	26,708	28,080	21,171
Peach	11	13,318	1,865	3,788	5,100	2,565
Pickens	1	15,846	2,609	4,549	5,058	3,630
Pierce	18	9,857	1,598	3,918	3,194	1,147
Pike	8	9,460	846	3,796	3,026	1,792
Polk	1	20,970	4,429	8,036	5,819	2,686
Pulaski	11	6,342	1,146	2,590	1,818	788
Putnam	11	10,937	1,526	4,273	3,136	2,002
Quitman	14	970	245	378	290	57
Rabun	2	8,034	1,141	3,143	2,092	1,658
Randolph	14	3,320	637	1,288	1,017	378
Richmond	12	104,715	15,893	31,921	34,454	22,447
Rockdale	7	46,182	5,074	14,052	14,098	12,958
Schley	15	2,497	358	900	864	375
Screven	20	7,280	1,059	3,017	2,062	1,142
Seminole	17	4,079	614	1,581	1,265	619
Spalding	8	32,410	5,534	12,165	9,339	5,372
Stephens	2	12,404	1,994	4,124	3,601	2,685
Stewart	14	3,428	1,025	1,393	552	458
Sumter	15	14,448	2,702	4,857	4,532	2,357
Talbot	14	3,332	518	1,496	900	418
Taliaferro	13	969	323	441	142	63
Tattnall	16	14,448	3,765	5,337	3,544	1,802
Taylor	15	4,230	757	1,616	1,359	498
Telfair	16	9,680	2,969	4,398	1,502	811
Terrell	17	4,481	955	1,396	1,700	430
Thomas	17	22,951	3,741	6,937	6,992	5,281
Tift	18	20,007	3,175	6,883	6,550	3,399
Toombs	16	13,316	2,158	5,288	3,744	2,126
Towns	2	4,377	494	1,320	1,624	939
Treutlen	16	3,477	680	1,347	982	468
Troup	8	35,212	4,942	12,722	11,001	6,547
Turner	18	4,038	918	1,541	1,075	504
Twiggs	11	4,297	1,112	1,658	1,112	415

(continued)

Table 13 (Continued)
Educational Attainment for Population Ages 25-64
By County in Georgia, 2013-2017
(estimated numbers)

County	LWDA	Total	No High School Diploma	High School Graduate*	Some College or Associate Degree	Bachelor's Degree or Higher
Union	2	10,356	1,354	3,631	3,456	1,915
Upson	8	13,370	2,269	5,048	4,374	1,679
Walker	1	35,916	5,567	12,934	11,478	5,937
Walton	9	45,375	5,337	16,875	14,208	8,955
Ware	18	18,335	2,907	7,480	5,453	2,495
Warren	13	2,855	536	1,316	528	475
Washington	13	10,752	1,873	4,659	2,734	1,486
Wayne	16	15,740	2,627	6,161	4,842	2,110
Webster	15	1,303	175	675	307	146
Wheeler	16	4,353	918	2,213	847	375
White	2	14,167	1,920	4,494	4,951	2,802
Whitfield	1	52,624	16,537	14,585	13,994	7,508
Wilcox	16	4,941	858	2,457	1,160	466
Wilkes	13	4,786	731	2,249	1,255	551
Wilkinson	11	4,629	647	2,491	1,091	400
Worth	17	10,463	1,936	4,208	3,134	1,185

*Includes equivalency.

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Table 14
Educational Attainment for Population Ages 25-64
By County in Georgia, Distribution and Rank, 2013-2017

County	LWDA	No High School Diploma		High School Graduate*		Some College or Associate Degree		Bachelor's Degree or Higher	
		Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank
Georgia		12.3	NA	26.9	NA	29.5	NA	31.3	NA
Appling	16	21.7	25	40.3	39	25.6	136	12.4	113
Atkinson	18	28.6	7	40.5	37	22.4	153	8.5	149
Bacon	18	17.5	62	41.8	29	29.3	89	11.3	122
Baker	17	19.8	37	37.4	73	32.3	45	10.5	134
Baldwin	11	14.8	101	37.2	75	28.0	109	20.0	50
Banks	2	21.4	26	41.5	30	24.8	143	12.3	114
Barrow	9	15.4	94	33.2	112	33.5	28	17.8	66
Bartow	1	15.9	83	33.9	105	29.9	83	20.3	47
Ben Hill	18	17.7	59	39.9	44	31.6	51	10.8	130
Berrien	18	17.9	57	42.3	24	28.8	97	10.9	128
Bibb	10	12.1	125	31.5	118	29.9	81	26.5	25
Bleckley	16	11.9	127	43.4	21	26.6	121	18.0	63
Brantley	18	17.9	56	48.7	5	25.9	132	7.4	154
Brooks	18	17.2	67	37.0	80	33.3	31	12.5	108
Bryan	20	6.7	154	24.9	147	34.5	22	33.9	12
Bulloch	20	11.7	130	25.7	145	33.4	29	29.1	17
Burke	12	16.3	78	37.9	66	34.6	21	11.2	125
Butts	8	22.1	23	42.2	26	25.2	140	10.6	132
Calhoun	17	23.6	15	41.1	32	26.1	129	9.2	144
Camden	20	7.6	151	30.5	123	38.6	5	23.4	30
Candler	16	24.9	13	33.6	106	28.3	101	13.1	103
Carroll	8	15.6	91	33.9	103	30.3	76	20.1	48
Catoosa	1	11.9	126	29.9	128	37.6	9	20.6	43
Charlton	18	21.0	31	44.4	18	26.2	126	8.4	150
Chatham	20	9.3	143	24.0	148	33.9	26	32.9	13
Chattahoochee	14	5.3	157	25.5	146	34.0	25	35.2	11
Chattooga	1	23.1	16	39.9	43	26.5	123	10.4	136
Cherokee	7	8.4	147	22.5	151	31.6	53	37.5	8
Clarke	9	12.8	120	20.5	153	24.9	142	41.8	7
Clay	14	13.2	115	46.7	7	33.2	32	6.9	156
Clayton	7	15.1	97	32.4	113	32.7	38	19.8	51
Clinch	18	22.1	22	33.5	110	30.4	74	13.9	90
Cobb	4	8.5	146	17.2	158	27.0	118	47.4	5
Coffee	18	20.4	34	37.4	70	27.5	115	14.6	86
Colquitt	17	26.3	9	37.4	71	23.6	145	12.6	105
Columbia	13	6.2	156	22.9	150	34.8	19	36.2	9
Cook	18	18.6	50	35.4	92	30.5	72	15.5	80
Coweta	8	9.3	142	29.1	131	31.2	59	30.4	14
Crawford	11	10.9	135	35.6	89	38.3	7	15.2	82
Crisp	15	14.5	104	42.3	25	29.6	86	13.6	96
Dade	1	17.7	60	33.5	108	35.0	17	13.8	92
Dawson	2	12.3	121	29.1	132	29.1	94	29.5	16
Decatur	17	18.5	52	34.6	98	33.2	33	13.8	94
DeKalb	5	10.4	138	20.2	154	26.1	127	43.3	6
Dodge	16	14.9	99	41.9	28	28.3	102	14.9	85

(continued)

Table 14 (Continued)
Educational Attainment for Population Ages 25-64
By County in Georgia, Distribution and Rank, 2013-2017

County	LWDA	No High School Diploma		High School Graduate*		Some College or Associate Degree		Bachelor's Degree or Higher	
		Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank
Dooly	15	22.8	17	39.9	45	28.2	106	9.1	146
Dougherty	17	14.7	102	28.7	134	35.8	12	20.9	41
Douglas	7	9.5	141	29.3	130	32.3	44	28.9	18
Early	17	12.9	119	37.2	77	30.8	65	19.1	57
Echols	18	31.4	3	32.1	115	29.1	92	7.4	155
Effingham	20	11.0	134	36.1	85	32.4	43	20.6	45
Elbert	9	18.7	49	44.9	16	25.9	134	10.6	133
Emanuel	16	17.3	66	43.5	20	26.0	130	13.2	102
Evans	16	20.8	32	40.3	40	23.2	151	15.7	78
Fannin	1	10.5	137	38.8	56	32.8	37	17.9	65
Fayette	7	4.3	159	17.5	155	27.6	114	50.6	4
Floyd	1	18.4	53	31.0	121	29.6	85	21.0	40
Forsyth	2	6.7	155	15.1	159	25.0	141	53.2	1
Franklin	2	19.2	42	39.1	53	28.2	105	13.5	98
Fulton	6	7.4	152	17.4	156	23.2	150	52.0	2
Gilmer	1	20.0	36	35.4	91	27.8	111	16.8	68
Glascock	13	17.6	61	42.1	27	30.8	66	9.5	141
Glynn	20	12.1	123	28.0	138	32.5	41	27.3	21
Gordon	1	21.7	24	34.1	102	30.4	75	13.8	93
Grady	17	19.3	40	35.0	95	31.6	52	14.1	89
Greene	9	18.7	48	37.5	69	23.3	149	20.6	44
Gwinnett	7	12.1	124	22.4	152	29.4	88	36.1	10
Habersham	2	19.3	41	33.9	104	27.1	116	19.7	55
Hall	2	22.7	19	26.5	144	28.1	107	22.6	33
Hancock	13	26.9	8	46.4	9	20.2	154	6.5	158
Haralson	1	17.4	64	37.2	76	30.1	79	15.3	81
Harris	14	7.9	149	23.0	149	41.1	3	28.1	19
Hart	2	17.2	68	39.8	46	30.8	64	12.2	116
Heard	8	16.4	75	46.5	8	25.7	135	11.4	120
Henry	7	8.6	145	28.5	136	32.8	36	30.1	15
Houston	11	7.6	150	27.1	141	38.8	4	26.5	24
Irwin	18	16.4	76	40.6	36	30.6	70	12.4	111
Jackson	9	15.9	84	31.7	117	31.1	60	21.3	39
Jasper	9	22.2	21	38.7	61	29.1	93	10.0	137
Jeff Davis	16	21.1	30	34.8	97	34.3	23	9.9	138
Jefferson	12	20.6	33	42.8	23	26.2	124	10.4	135
Jenkins	13	18.3	54	44.4	17	29.2	91	8.1	152
Johnson	16	19.1	44	46.2	10	25.4	138	9.3	143
Jones	11	10.1	139	36.7	82	31.3	57	21.9	34
Lamar	8	12.3	122	37.4	72	30.6	69	19.7	54
Lanier	18	15.8	87	33.5	109	32.8	35	17.9	64
Laurens	16	14.1	107	43.9	19	26.1	128	15.8	77
Lee	17	9.5	140	28.0	139	35.2	15	27.3	22
Liberty	20	7.3	153	30.1	127	42.6	1	20.0	49
Lincoln	13	14.9	100	45.7	12	28.7	98	10.7	131
Long	20	11.8	128	29.7	129	42.2	2	16.4	73
Lowndes	18	13.8	112	28.5	135	31.7	50	26.0	26

(continued)

Table 14 (Continued)
Educational Attainment for Population Ages 25-64
By County in Georgia, Distribution and Rank, 2013-2017

County	LWDA	No High School Diploma		High School Graduate*		Some College or Associate Degree		Bachelor's Degree or Higher	
		Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank
Lumpkin	2	16.8	71	27.0	142	30.3	77	25.9	27
Macon	15	24.5	14	34.2	101	33.7	27	7.6	153
Madison	9	15.7	90	34.9	96	31.0	61	18.4	61
Marion	15	18.8	45	37.3	74	31.5	54	12.3	115
McDuffie	13	16.5	74	39.3	49	27.7	113	16.6	70
McIntosh	20	15.7	89	35.4	90	37.5	10	11.3	124
Meriwether	8	19.4	39	40.5	38	29.3	90	10.8	129
Miller	17	15.8	88	35.0	94	35.4	14	13.8	95
Mitchell	17	22.3	20	38.7	60	28.0	110	11.0	127
Monroe	11	13.0	118	36.3	83	25.3	139	25.5	29
Montgomery	16	16.4	77	39.2	50	30.2	78	14.3	87
Morgan	9	11.6	131	35.9	88	30.9	63	21.6	36
Murray	1	31.1	4	37.1	79	22.7	152	9.2	145
Muscogee	14	10.8	136	26.6	143	35.5	13	27.0	23
Newton	9	13.1	116	31.2	119	35.1	16	20.5	46
Oconee	9	4.7	158	17.2	157	26.7	119	51.4	3
Oglethorpe	9	20.1	35	34.3	100	29.5	87	16.0	75
Paulding	1	8.0	148	32.4	114	34.0	24	25.7	28
Peach	11	14.0	109	28.4	137	38.3	6	19.3	56
Pickens	1	16.5	73	28.7	133	31.9	49	22.9	32
Pierce	18	16.2	80	39.7	47	32.4	42	11.6	118
Pike	8	8.9	144	40.1	42	32.0	47	18.9	58
Polk	1	21.1	28	38.3	63	27.7	112	12.8	104
Pulaski	11	18.1	55	40.8	33	28.7	100	12.4	112
Putnam	11	14.0	111	39.1	54	28.7	99	18.3	62
Quitman	14	25.3	12	39.0	55	29.9	82	5.9	159
Rabun	2	14.2	106	39.1	52	26.0	131	20.6	42
Randolph	14	19.2	43	38.8	57	30.6	68	11.4	121
Richmond	12	15.2	96	30.5	122	32.9	34	21.4	38
Rockdale	7	11.0	133	30.4	124	30.5	71	28.1	20
Schley	15	14.3	105	36.0	86	34.6	20	15.0	84
Screven	20	14.5	103	41.4	31	28.3	103	15.7	79
Seminole	17	15.1	98	38.8	58	31.0	62	15.2	83
Spalding	8	17.1	69	37.5	68	28.8	96	16.6	71
Stephens	2	16.1	82	33.2	111	29.0	95	21.6	35
Stewart	14	29.9	6	40.6	35	16.1	157	13.4	101
Sumter	15	18.7	47	33.6	107	31.4	55	16.3	74
Talbot	14	15.5	92	44.9	15	27.0	117	12.5	107
Taliaferro	13	33.3	1	45.5	13	14.7	159	6.5	157
Tattnall	16	26.1	10	36.9	81	24.5	144	12.5	110
Taylor	15	17.9	58	38.2	64	32.1	46	11.8	117
Telfair	16	30.7	5	45.4	14	15.5	158	8.4	151
Terrell	17	21.3	27	31.2	120	37.9	8	9.6	140
Thomas	17	16.3	79	30.2	125	30.5	73	23.0	31
Tift	18	15.9	85	34.4	99	32.7	39	17.0	67
Toombs	16	16.2	81	39.7	48	28.1	108	16.0	76
Towns	2	11.3	132	30.2	126	37.1	11	21.5	37

(continued)

Table 14 (Continued)
Educational Attainment for Population Ages 25-64
By County in Georgia, Distribution and Rank, 2013-2017

County	LWDA	No High School Diploma		High School Graduate*		Some College or Associate Degree		Bachelor's Degree or Higher	
		Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank
Treutlen	16	19.6	38	38.7	59	28.2	104	13.5	99
Troup	8	14.0	108	36.1	84	31.2	58	18.6	59
Turner	18	22.7	18	38.2	65	26.6	120	12.5	109
Twiggs	11	25.9	11	38.6	62	25.9	133	9.7	139
Union	2	13.1	117	35.1	93	33.4	30	18.5	60
Upson	8	17.0	70	37.8	67	32.7	40	12.6	106
Walker	1	15.5	93	36.0	87	32.0	48	16.5	72
Walton	9	11.8	129	37.2	78	31.3	56	19.7	53
Ware	18	15.9	86	40.8	34	29.7	84	13.6	97
Warren	13	18.8	46	46.1	11	18.5	156	16.6	69
Washington	13	17.4	63	43.3	22	25.4	137	13.8	91
Wayne	16	16.7	72	39.1	51	30.8	67	13.4	100
Webster	15	13.4	114	51.8	2	23.6	147	11.2	126
Wheeler	16	21.1	29	50.8	3	19.5	155	8.6	148
White	2	13.6	113	31.7	116	34.9	18	19.8	52
Whitfield	1	31.4	2	27.7	140	26.6	122	14.3	88
Wilcox	16	17.4	65	49.7	4	23.5	148	9.4	142
Wilkes	13	15.3	95	47.0	6	26.2	125	11.5	119
Wilkinson	11	14.0	110	53.8	1	23.6	146	8.6	147
Worth	17	18.5	51	40.2	41	30.0	80	11.3	123

*Includes equivalency.

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Table 15
Population with Bachelor's Degree or Higher in Georgia, 2013-2017

Race	Population 25+ Number	Percent
White alone	4,188,926	62.6
White alone, not Hispanic or Latino	3,876,498	57.9
Black alone	1,981,471	29.6
American Indian or Alaska Native alone	19,799	0.3
Asian alone	262,112	3.9
Native Hawaiian and Other Pacific Islander alone	3,380	0.1
Some other race alone	147,487	2.2
Two or more races	90,651	1.4
Hispanic or Latino origin	493,513	7.4
Total	6,693,826	100
	With Bachelor's Degree or Higher	
White alone	1,360,722	32.5
White alone, not Hispanic or Latino	1,304,786	33.7
Black alone	448,540	22.6
American Indian or Alaska Native alone	4,263	21.5
Asian alone	140,476	53.6
Native Hawaiian and Other Pacific Islander alone	629	18.6
Some other race alone	17,535	11.9
Two or more races	31,366	34.6
Hispanic or Latino origin	78,984	16.0
Total	2,003,531	30.0

Source: U.S. Census Bureau, American Community Survey, 2017, 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Table 16
Resident Population Projections by Race in Georgia, 2017-2025

Year	Total	Nonhispanic White	Nonhispanic Black	Nonhispanic Other	Hispanic
2017	10,429,379	5,507,334	3,267,577	648,509	1,005,959
2018	10,517,912	5,513,610	3,310,604	666,860	1,026,838
2019	10,606,453	5,519,904	3,353,707	685,209	1,047,633
2020	10,694,980	5,526,117	3,396,756	703,528	1,068,579
2021	10,783,482	5,532,444	3,439,808	721,873	1,089,357
2022	10,872,082	5,538,680	3,482,880	740,199	1,110,323
2023	10,976,681	5,552,076	3,530,223	760,933	1,133,449
2024	11,081,413	5,565,473	3,577,611	781,704	1,156,625
2025	11,186,110	5,578,801	3,624,928	802,481	1,179,900
2017-2025 Compound Annual Rate of Growth*	0.9%	0.2%	1.3%	2.7%	2.0%

*Calculated by the Selig Center for Economic Growth, Terry College of Business, University of Georgia.

Source: Governor's Office of Planning and Budget, Gerogia Residential Population Projections by Race: 2017-2062, 2019 Series.

Figure 6
Educational Attainment for Population Ages 25-64
By County in Georgia, 2013-2017

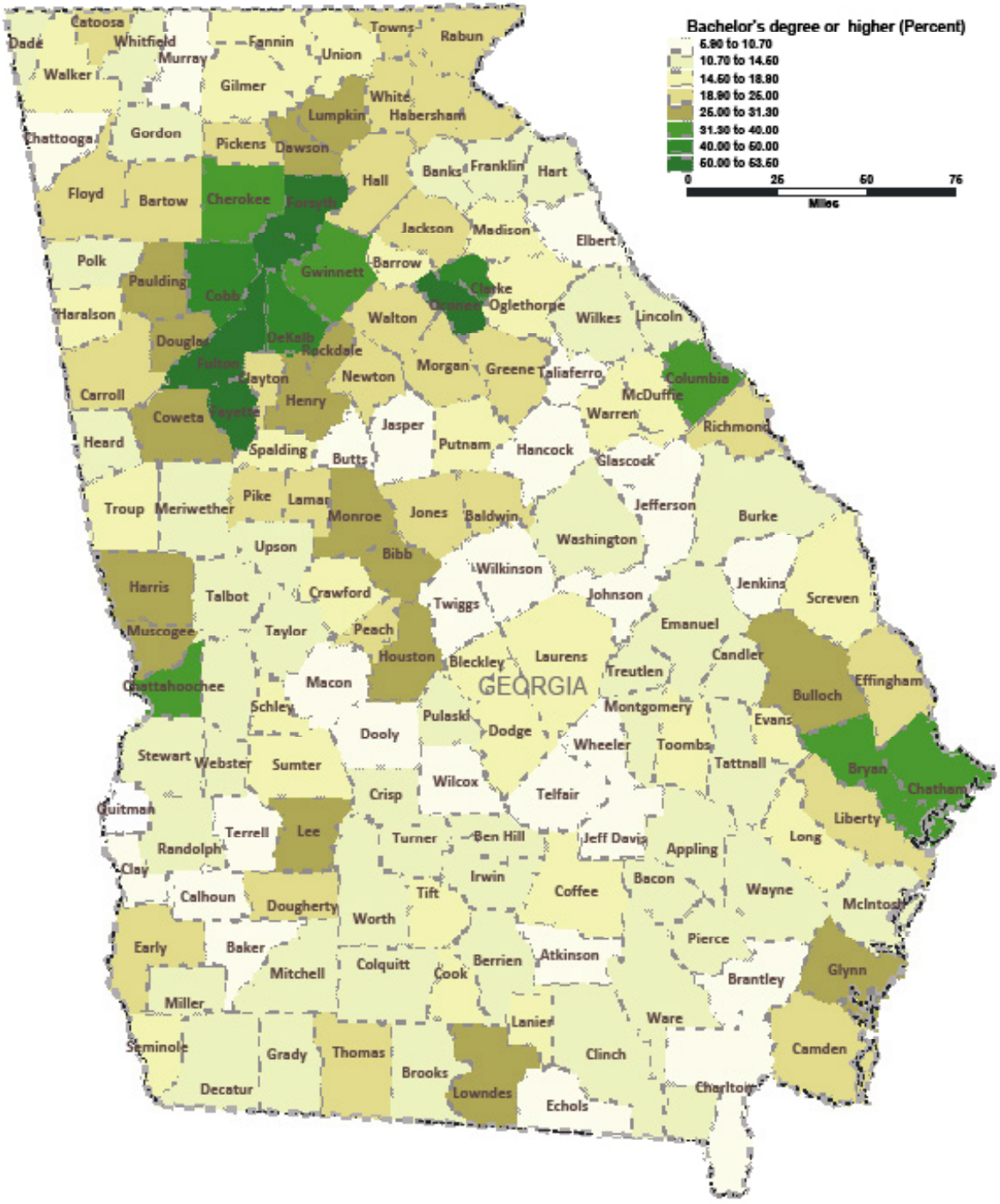
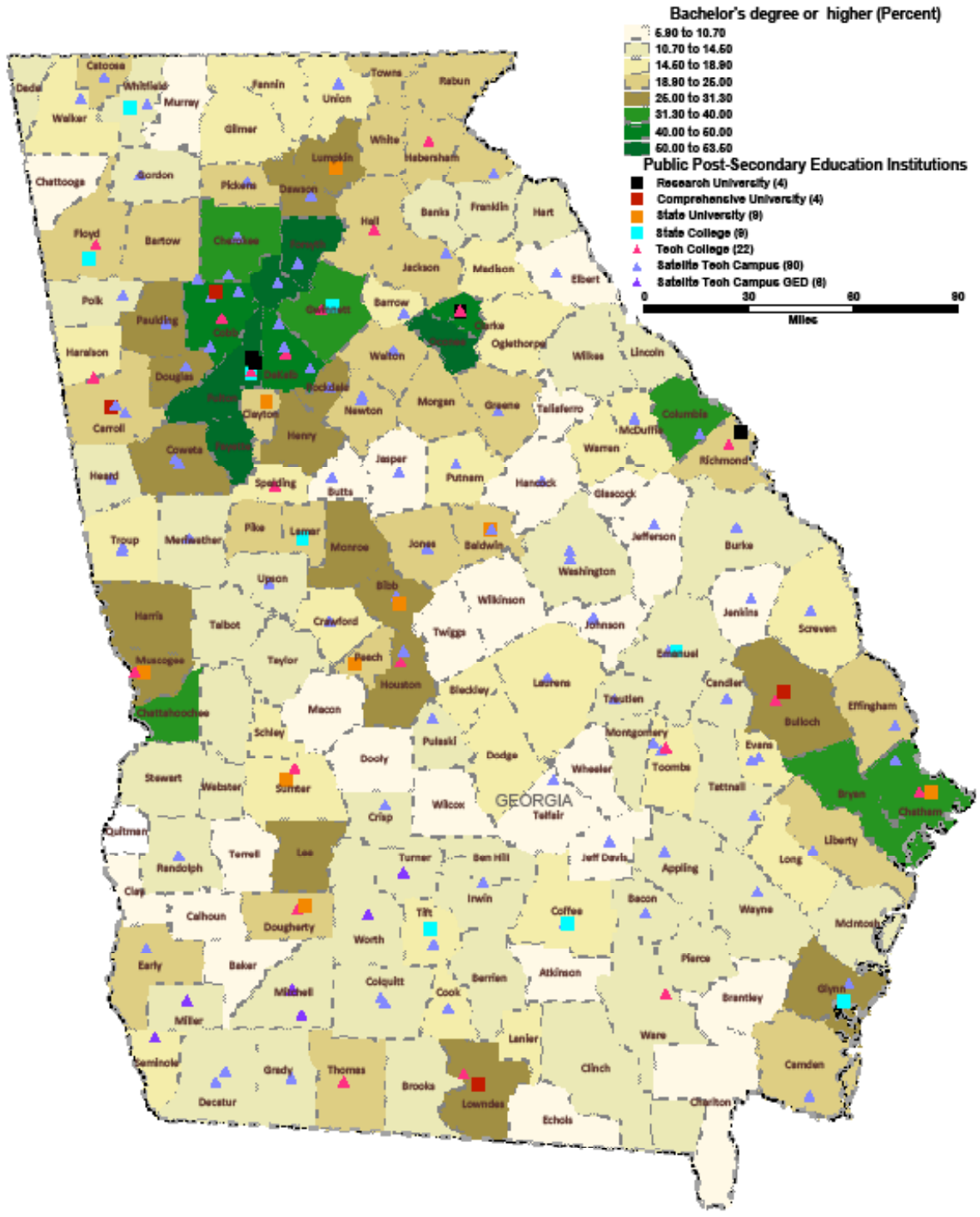


Figure 7
Share of Population with Bachelor's Degrees or Higher,
And Location of Postsecondary Educational Institutions in Georgia



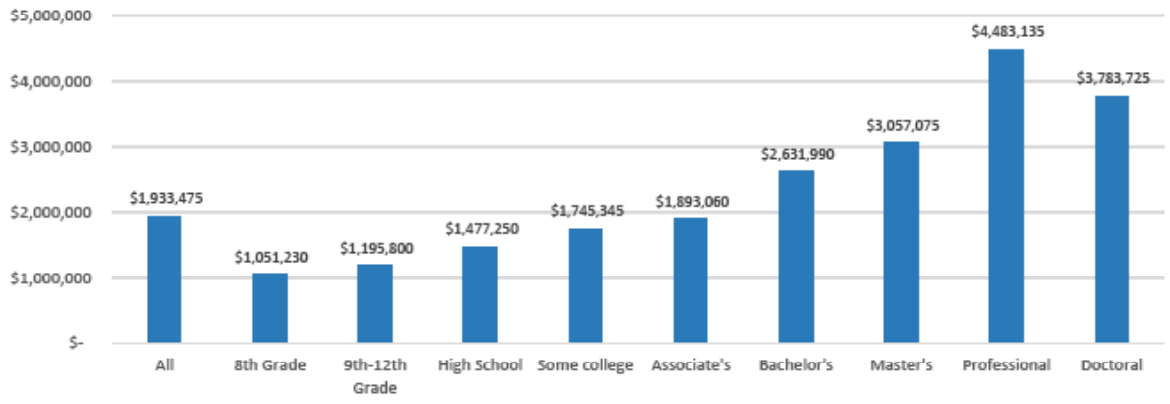
All Demographics

Table 17
Educational Attainment and Synthetic Work-Life Earnings
For All Demographic Groups in the United States and Georgia
(2017 dollars)

Educational Attainment	Synthetic Work-Life Earnings US	Georgia	By Step in Attainment	Additional Work-Life Earnings US	Georgia
Doctoral	3,783,725	3,331,165	Master's to Doctoral	726,650	609,820
Professional	4,483,135	3,518,565	Bachelor's to Professional	1,851,145	975,265
Master's	3,057,075	2,721,345	Bachelor's to Master's	425,085	178,045
Bachelor's	2,631,990	2,543,300	High School to Bachelor's	1,154,740	1,188,320
Associate	1,893,060	1,762,185	High School to Associate	415,810	407,205
Some college	1,745,345	1,620,880	High School to Some College	268,095	265,900
High school graduate	1,477,250	1,354,980	9th-12th to High School	281,450	222,270
9th-12th grade	1,195,800	1,132,710			
None-8th grade	1,051,230	989,225			
All levels	1,933,475	1,819,555			

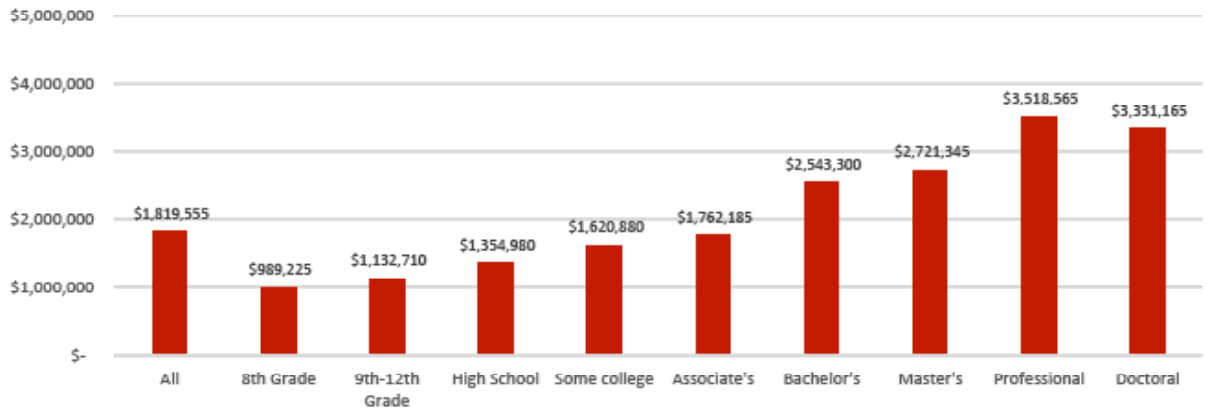
Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 8
Synthetic Work-Life Earnings
Across All Demographic Groups in the United States
(2017 dollars)



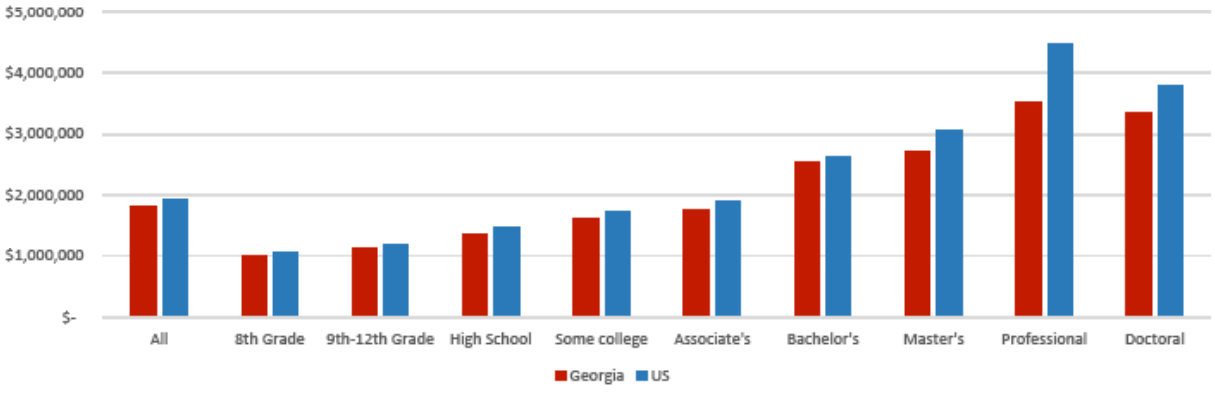
Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 9
Synthetic Work-Life Earnings
Across All Demographic Groups in Georgia
(2017 dollars)



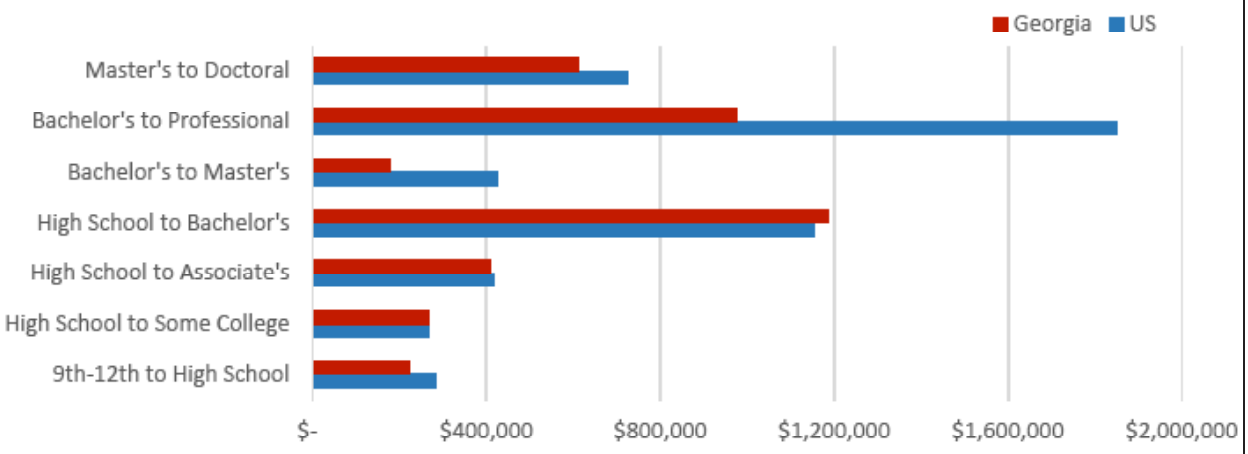
Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 10
Synthetic Work-Life Earnings Across All Demographic Groups
in Georgia versus the United States
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 11
Additional Synthetic Work-Life Earnings by Steps in Educational Attainment Across All Demographic Groups in Georgia and the United States (2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

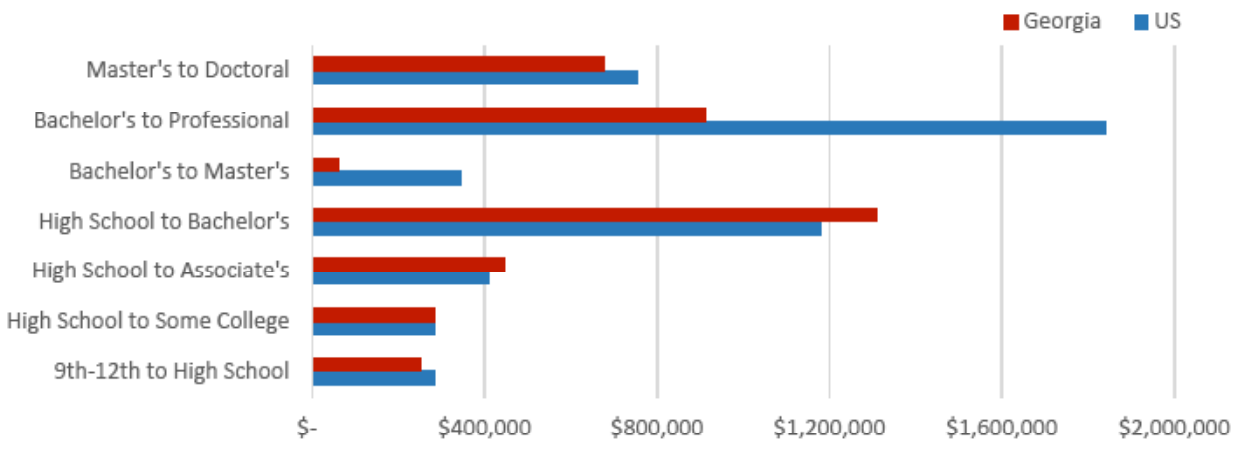
Whites

Table 18
Educational Attainment and Synthetic Work-Life Earnings
For Whites in the United States and Georgia
(2017 dollars)

Educational Attainment	Synthetic Work-Life Earnings US	Georgia	By Step in Attainment	Additional Work-Life Earnings US	Georgia
Doctoral	3,810,490	3,528,460	Master's to Doctoral	753,790	676,645
Professional	4,555,725	3,702,575	Bachelor's to Professional	1,841,545	911,185
Master's	3,056,700	2,851,815	Bachelor's to Master's	342,520	60,425
Bachelor's	2,714,180	2,791,390	High School to Bachelor's	1,178,435	1,310,315
Associate	1,946,415	1,927,185	High School to Associate	410,670	446,110
Some college	1,818,175	1,766,410	High School to Some College	282,430	285,335
High school graduate	1,535,745	1,481,075	9th-12th to High School	281,590	251,870
9th-12th grade	1,254,155	1,229,205			
None-8th grade	1,078,700	1,014,755			
All levels	2,017,330	1,972,795			

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 12
Additional Synthetic Work-Life Earnings by Steps in Educational Attainment
For Whites in Georgia and the United States
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Blacks

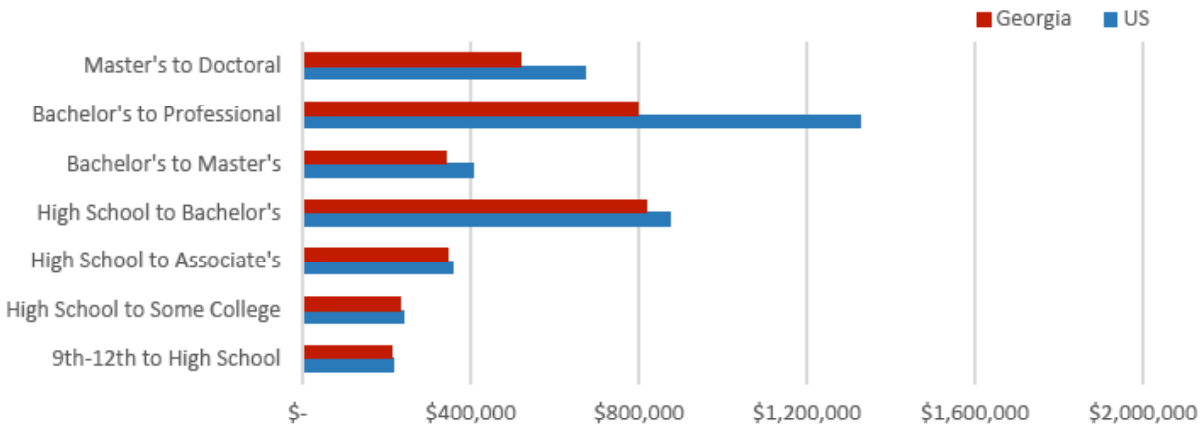
Table 19
Educational Attainment and Synthetic Work-Life Earnings
For Blacks in the United States and Georgia
(2017 dollars)

Educational Attainment	Synthetic Work-Life Earnings US	Georgia	By Step in Attainment	Additional Work-Life Earnings US	Georgia
Doctoral	3,213,655	2,882,640	Master's to Doctoral	672,475	517,580
Professional	3,460,830	2,822,840	Bachelor's to Professional	1,326,745	799,465
Master's	2,541,180	2,365,060	Bachelor's to Master's	407,095	341,685
Bachelor's	2,134,085	2,023,375	High School to Bachelor's	872,475	817,230
Associate	1,618,355	1,552,155	High School to Associate	356,745	346,010
Some college	1,499,605	1,439,035	High School to Some College	237,995	232,890
High school graduate	1,261,610	1,206,145	9th-12th to High School	216,055	210,508
9th-12th grade	1,045,555	995,638			
None-8th grade	1,074,440	982,755			
All levels	1,574,635	1,520,210			

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 13

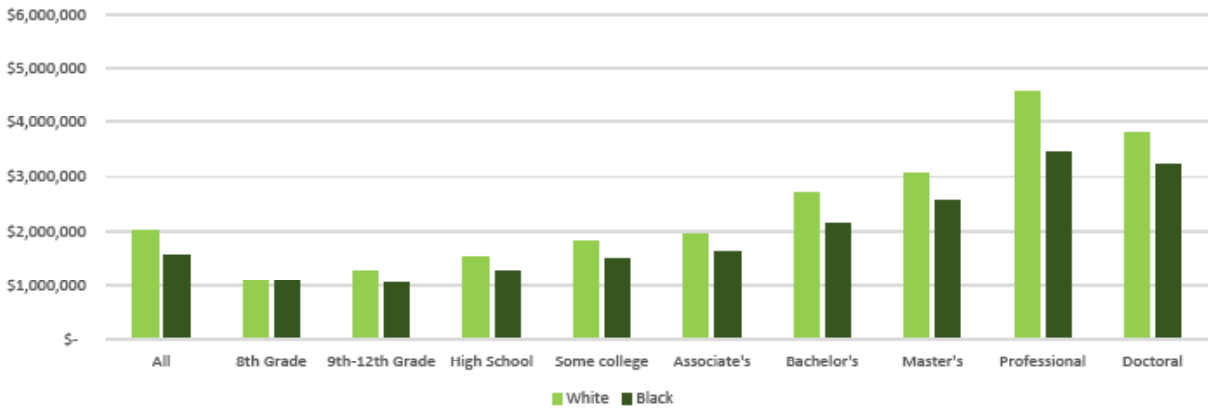
Additional Synthetic Work-Life Earnings by Steps in Educational Attainment
For Blacks in Georgia and the United States
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 14

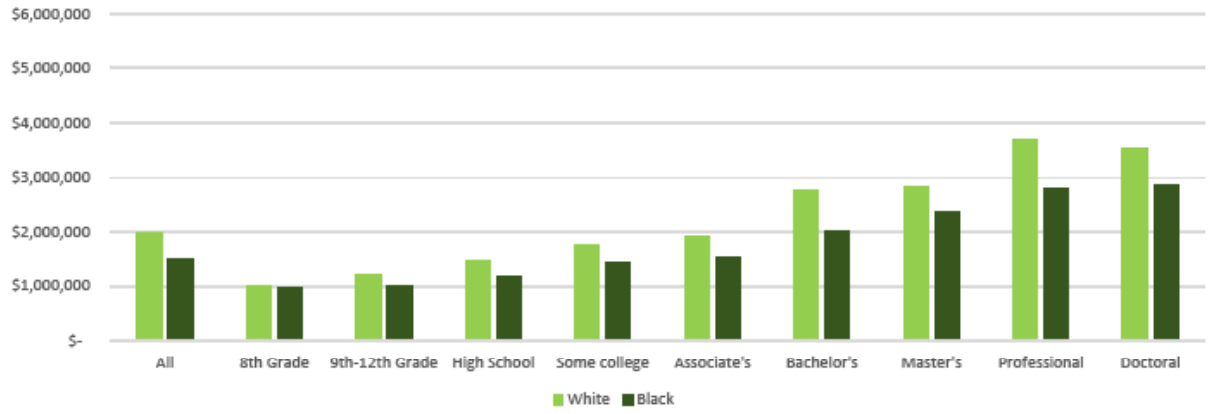
Synthetic Work-Life Earnings
For Whites versus Blacks in the United States
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 15

Synthetic Work-Life Earnings
For Whites versus Blacks in Georgia
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

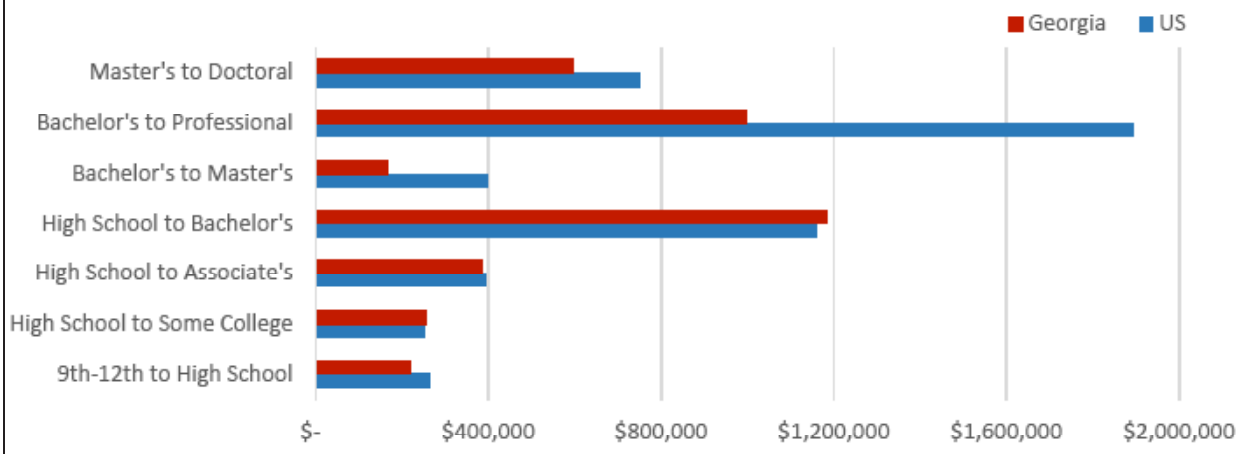
Non-Hispanics

Table 20
Educational Attainment and Synthetic Work-Life Earnings
For Non-Hispanics in the United States and Georgia
(2017 dollars)

Educational Attainment	Synthetic Work-Life Earnings US	Georgia	By Step in Attainment	Additional Work-Life Earnings US	Georgia
Doctoral	3,823,480	3,320,820	Master's to Doctoral	749,715	594,000
Professional	4,569,510	3,558,545	Bachelor's to Professional	1,893,115	996,300
Master's	3,073,765	2,726,820	Bachelor's to Master's	397,370	164,575
Bachelor's	2,676,395	2,562,245	High School to Bachelor's	1,159,085	1,181,900
Associate	1,912,035	1,766,890	High School to Associate	394,725	386,545
Some college	1,769,665	1,634,525	High School to Some College	252,355	254,180
High school graduate	1,517,310	1,380,345	9th-12th to High School	265,005	217,180
9th-12th grade	1,252,305	1,163,165			
None-8th grade	1,220,730	1,089,260			
All levels	2,032,785	1,872,045			

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 16
Additional Synthetic Work-Life Earnings by Steps in Educational Attainment
For Non-Hispanics in Georgia and the United States
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

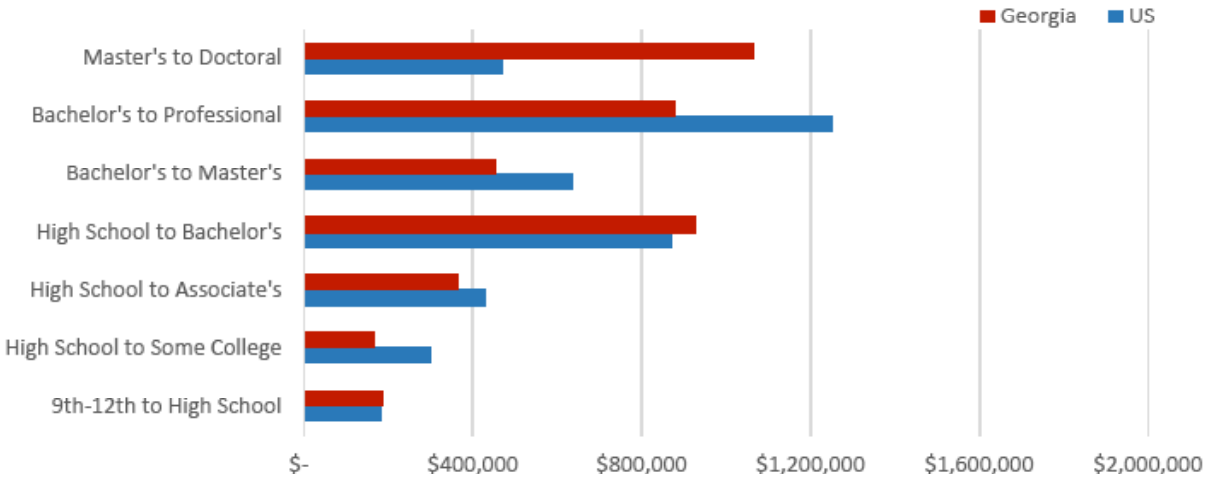
Hispanics

Table 21
Educational Attainment and Synthetic Work-Life Earnings
For Hispanics in the United States and Georgia
(2017 dollars)

Educational Attainment	Synthetic Work-Life Earnings US	Georgia	By Step in Attainment	Additional Work-Life Earnings US	Georgia
Doctoral	3,264,155	3,628,795	Master's to Doctoral	471,630	1,064,950
Professional	3,406,720	2,990,015	Bachelor's to Professional	1,250,045	879,190
Master's	2,792,525	2,563,845	Bachelor's to Master's	635,850	453,020
Bachelor's	2,156,675	2,110,825	High School to Bachelor's	869,890	925,515
Associate	1,714,705	1,549,535	High School to Associate	427,920	364,225
Some college	1,584,800	1,352,295	High School to Some College	298,015	166,985
High school graduate	1,286,785	1,185,310	9th-12th to High School	181,840	187,155
9th-12th grade	1,104,945	998,155			
None-8th grade	1,004,510	945,720			
All levels	1,407,140	1,211,535			

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

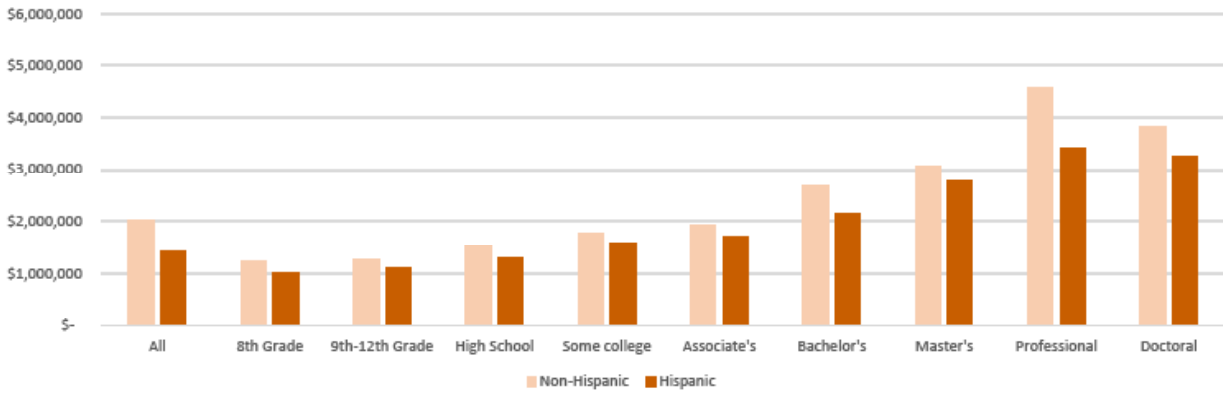
Figure 17
Additional Synthetic Work-Life Earnings by Steps in Educational Attainment
For Hispanics in Georgia and the United States
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 18

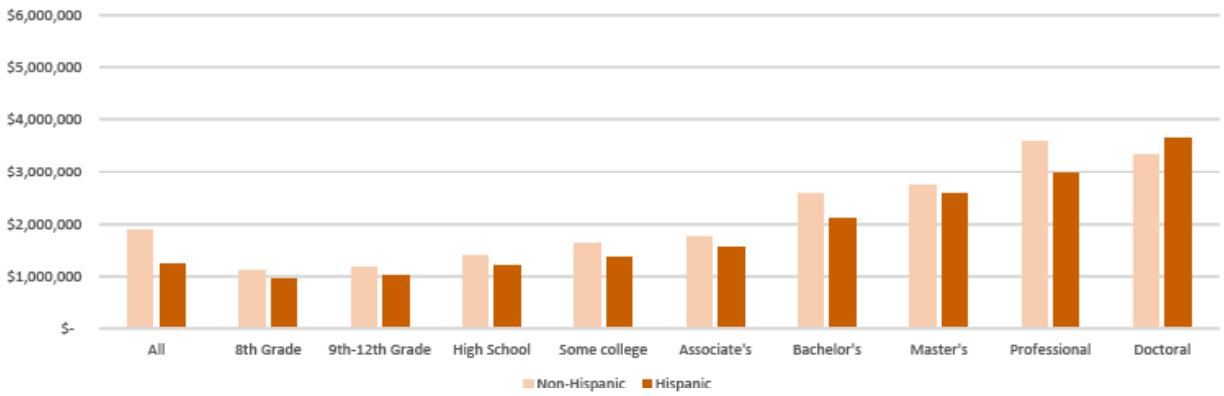
Synthetic Work-Life Earnings
For Non-Hispanics versus Hispanics in the United States
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 19

Synthetic Work-Life Earnings
For Non-Hispanics versus Hispanics in Georgia
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

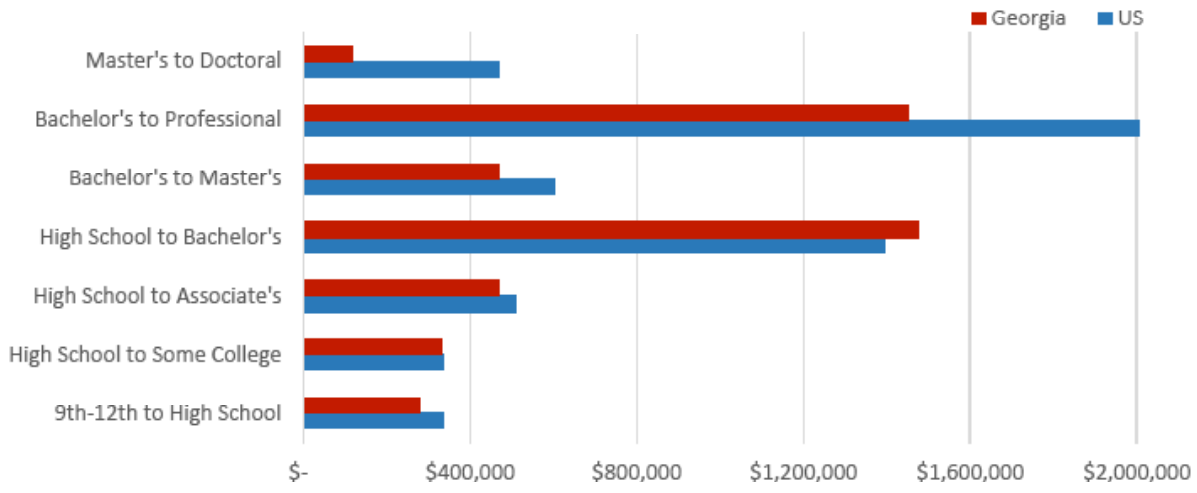
Males

Table 22
Educational Attainment and Synthetic Work-Life Earnings
For Males in the United States and Georgia
(2017 dollars)

Educational Attainment	Synthetic Work-Life Earnings US	Georgia	By Step in Attainment	Additional Work-Life Earnings US	Georgia
Doctoral	4,137,820	3,596,160	Master's to Doctoral	468,705	115,750
Professional	5,171,395	4,462,610	Bachelor's to Professional	2,106,270	1,450,675
Master's	3,669,115	3,480,410	Bachelor's to Master's	603,990	468,475
Bachelor's	3,065,125	3,011,935	High School to Bachelor's	1,394,735	1,473,950
Associate	2,181,370	2,007,435	High School to Associate	510,980	469,450
Some college	2,004,885	1,868,795	High School to Some College	334,495	330,810
High school graduate	1,670,390	1,537,985	9th-12th to High School	335,390	280,345
9th-12th grade	1,335,000	1,257,640			
None-8th grade	1,150,730	1,068,825			
All levels	2,157,375	1,976,055			

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 20
Additional Synthetic Work-Life Earnings by Steps in Educational Attainment
For Males in Georgia and the United States
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

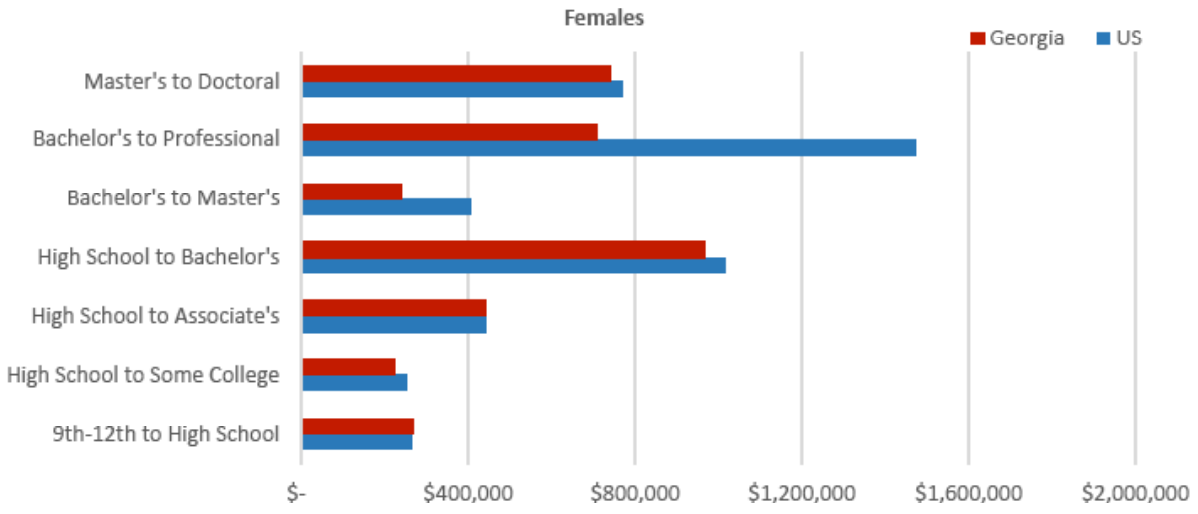
Females

Table 23
Educational Attainment and Synthethic Work-Life Earnings
For Females in the United States and Georgia
(2017 dollars)

Educational Attainment	Synthetic Work-Life Earnings US	Georgia	By Step in Attainment	Additional Work-Life Earnings US	Georgia
Doctoral	3,405,920	3,097,320	Master's to Doctoral	767,620	742,150
Professional	3,706,645	2,824,860	Bachelor's to Professional	1,471,615	709,940
Master's	2,638,300	2,355,170	Bachelor's to Master's	403,270	240,250
Bachelor's	2,235,030	2,114,920	High School to Bachelor's	1,016,420	968,015
Associate	1,658,365	1,587,855	High School to Associate	439,755	440,950
Some college	1,469,020	1,369,100	High School to Some College	250,410	222,195
High school graduate	1,218,610	1,146,905	9th-12th to High School	264,570	266,430
9th-12th grade	954,040	880,475			
None-8th grade	853,265	818,780			
All levels	1,701,780	1,584,430			

Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

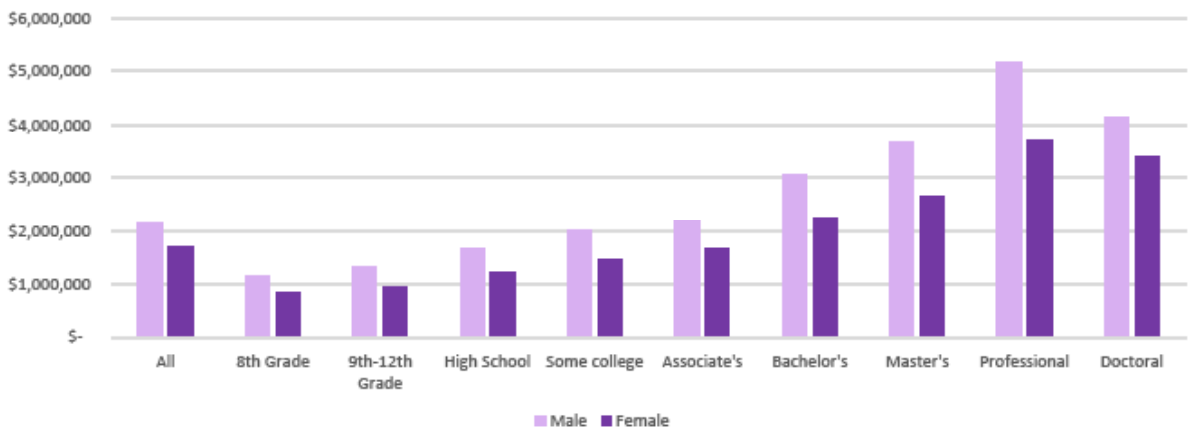
Figure 21
Additional Synthetic Work-Life Earnings by Steps in Educational Attainment
For Females in Georgia and the United States
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 22

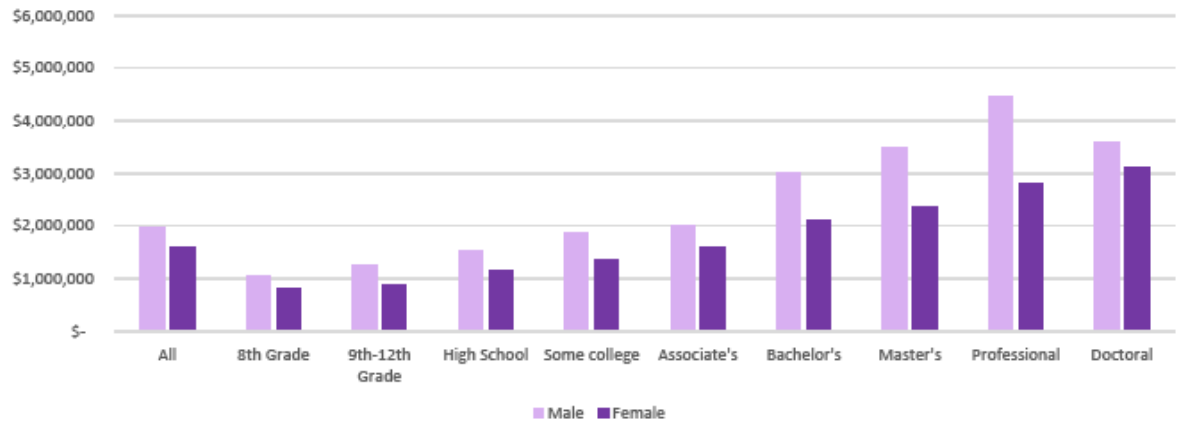
Synthetic Work-Life Earnings
For Males versus Females in the United States
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.

Figure 23

Synthetic Work-Life Earnings
For Males versus Females in Georgia
(2017 dollars)



Source: Selig Center for Economic Growth, based on U.S. Census Bureau, American Community Survey, 2017 5-Year Public Use Microdata Samples; IPUMS USA, University of Minnesota.