

Expanding the economic pie in the Peach State

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Preface

McKinsey & Company recently marked the 40th anniversary of its Atlanta office. The city of Atlanta and the state of Georgia have flourished over that time, and McKinsey has been honored to be part of the community.

With this report, we celebrate our milestone by contributing to a stronger understanding of the state's economic potential. Based on comprehensive data and interviews with business and community leaders, the report offers an objective analysis of the state's economic situation to help Georgia's leaders prepare for the future. This is a nonpartisan report, and it was not sponsored or commissioned by any institution.

McKinsey's Atlanta office developed the report in collaboration with the McKinsey Global Institute. McKinsey partner Neel Gandhi and Atlanta managing senior partner Steve Reis led the research, together with partners Erica Coe and Sara Prince and senior partner Greg Kelly. We received valuable insights from McKinsey colleagues and experts—including consultants Jonah Driggers, Katie Kelley, AJ Miceli, and Ben Taylor, and partner Sree Ramaswamy—and from many leaders in Georgia. We are grateful to our colleagues and partners for their contributions.

We hope that this report will spark discussions and partnerships that will lead to a positive impact on the state's economy. We must come together across sectors and collaborate to accelerate one of the most important state economies in the United States.

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Executive summary

Over the past 40 years, the state of Georgia has been a clear economic success. From 1977 to 2017, Georgia went from being the 17th largest state economy in the United States to the ninth. During that time, the state attracted and helped nurture dozens of Fortune 500 companies and saw the growth of globally relevant industries in sectors such as film production and logistics. At the same time, Atlanta evolved from a regional city into a superstar city—of 50 cities worldwide that earned superstar designation from the McKinsey Global Institute (MGI), Atlanta is one of only 11 in the United States.¹ Atlanta is now the economic crown jewel of the region, attracting businesses, investment, and talent in a virtuous cycle. With Atlanta leading the way, Georgia has consistently expanded its productive capacity over decades, resulting in higher GDP for the state, greater output, and new economic opportunities for Georgia’s citizens.

Despite this good news, the data show reason for concern about Georgia’s continued economic growth. The state’s economy is at full employment, and population in-migration—which has helped fuel economic growth in the past—is slower than in recent years. At the same time, Georgia’s workforce is underutilized, as a significant segment of the state’s workforce is disconnected from the labor market. Georgia’s businesses increasingly struggle to fill jobs as a result, even as large segments of the population have not reaped the benefits of the state’s growth. Indeed, lower-skilled workers in Georgia experience persistently high rates of unemployment.

Moreover, economic progress has been geographically uneven, with most gains going to the Atlanta metropolitan area while large areas of the state have fallen behind. And only some types of firms have thrived: while new firm creation has been strong and mature firms have thrived, younger and growing companies have struggled to survive and scale.

Our analysis shows that to set the stage for sustainable growth, the state may need to cultivate in-state sources of economic growth. The most positive economic effects can be derived from a more inclusive economy in three key areas:

- **An expanded workforce** that is healthier, better trained, more connected, and fully utilized. This could bring nearly 400,000 additional workers into the workforce and increase weekly hours worked by 1 percent.
- **Revitalized regions** that support industries in which they have unique structural and competitive advantages. This could stimulate more than \$13 billion in incremental growth outside Atlanta.
- **Diverse sizes and types of firms** that can grow, scale, and thrive throughout their lifespan. This could help an additional 15,000 firms survive past five years and about 1,000 more firms grow to over 50 employees.

Fostering inclusive growth in Georgia could result in an additional \$68 billion of GDP, or an additional percentage point of annual growth over the next ten years. By taking strategic action, a broad set of stakeholders in Georgia could expand the state's economic productivity and develop promising new industries—and include a wider share of the state's workforce, regions, and firms.



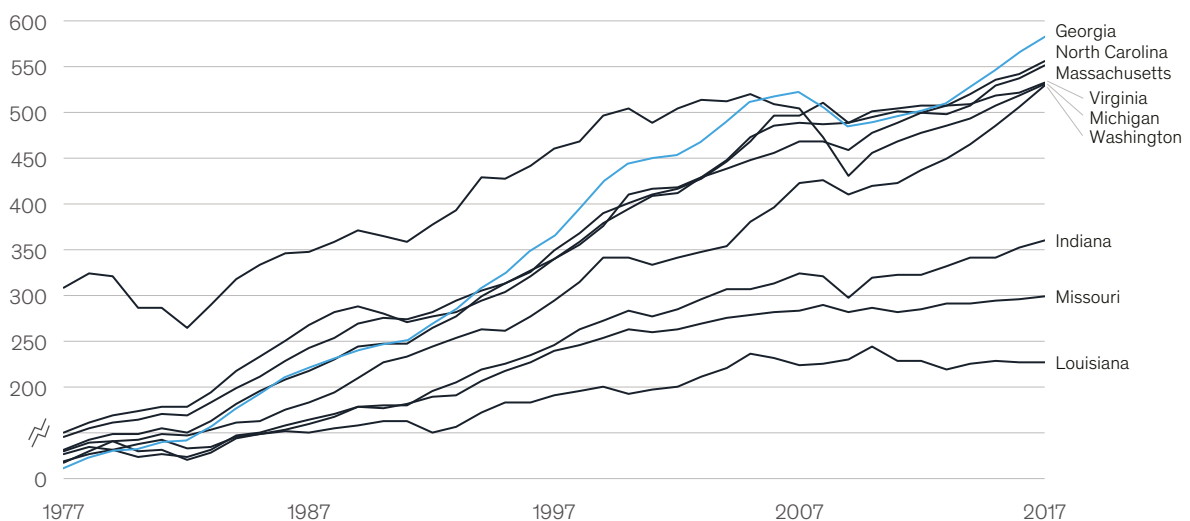
Where Georgia stands today

The state of Georgia has been a model of economic success for four decades. Since 1977, Georgia's GDP has grown about 25 percent faster than its peers' (Exhibit 1).

Exhibit 1

Georgia has surpassed many of its peers to become the ninth-largest state economy.

GDP¹ growth 1977–2017, \$, billions



¹ According to BEA, chained to 2017 dollars.

Source: US Bureau of Economic Analysis

Today, the state has a lower unemployment rate than the United States as a whole, the highest possible credit rating, and one of the lowest government-debt-per-capita levels in the nation.² Twenty-one Fortune 500 companies call Georgia home, and more firms are choosing to locate key business units and technology teams in the state. The Atlanta metropolitan area is an economic powerhouse and one of the most economically significant cities in America.

Key strengths

One of the most important factors in Georgia's economic boom has been the state's infrastructure. Hartsfield-Jackson Atlanta International Airport is the most efficient and busiest airport in the world, serving over 100 million passengers annually and shipping approximately 700,000 metric tons of cargo.³ Indeed, most CEOs interviewed for this report cited the airport as the state's primary economic advantage. Container ports in Savannah and Brunswick also support trade—Savannah is the fourth busiest container port in the United States—⁴and Georgia ranks third in the nation in rail accessibility for intermodal, bulk, and automotive shipments.⁵ In addition, the state's roads are the best in the country, with only 4 percent in poor condition.⁶ Georgia's strong infrastructure network connects the state's businesses with both neighboring and global markets, helping to launch the state into the ranks of the largest US state economies.

For decades Georgia has amplified its advantages by cultivating business-friendly policies, leading *Area Development* to name it the US state with the most favorable business environment.⁷ For instance, manufacturers can partner with Georgia colleges and universities as part of the Quick Start workforce training program, which provides free training for businesses that are considering relocating to Georgia. Entrepreneurs benefit from programs such as the Georgia Centers of Innovation, which matches businesses with partnerships to commercialize new ideas and technologies. Additionally, the state has avoided major swings in fiscal policy, earning a AAA credit rating from Moody's, Fitch, and Standard & Poor's.

Georgia's upward economic trajectory has been accompanied by significant growth in the state's population as the state has attracted, welcomed, and nurtured talent. The state's population has nearly doubled in the past 40 years, growing 99 percent while the national population grew an average 48 percent.⁸ This approach has fostered entrepreneurial growth; the state ranks seventh in the United States for the share of woman-owned firms and third for the share of black-owned firms.⁹

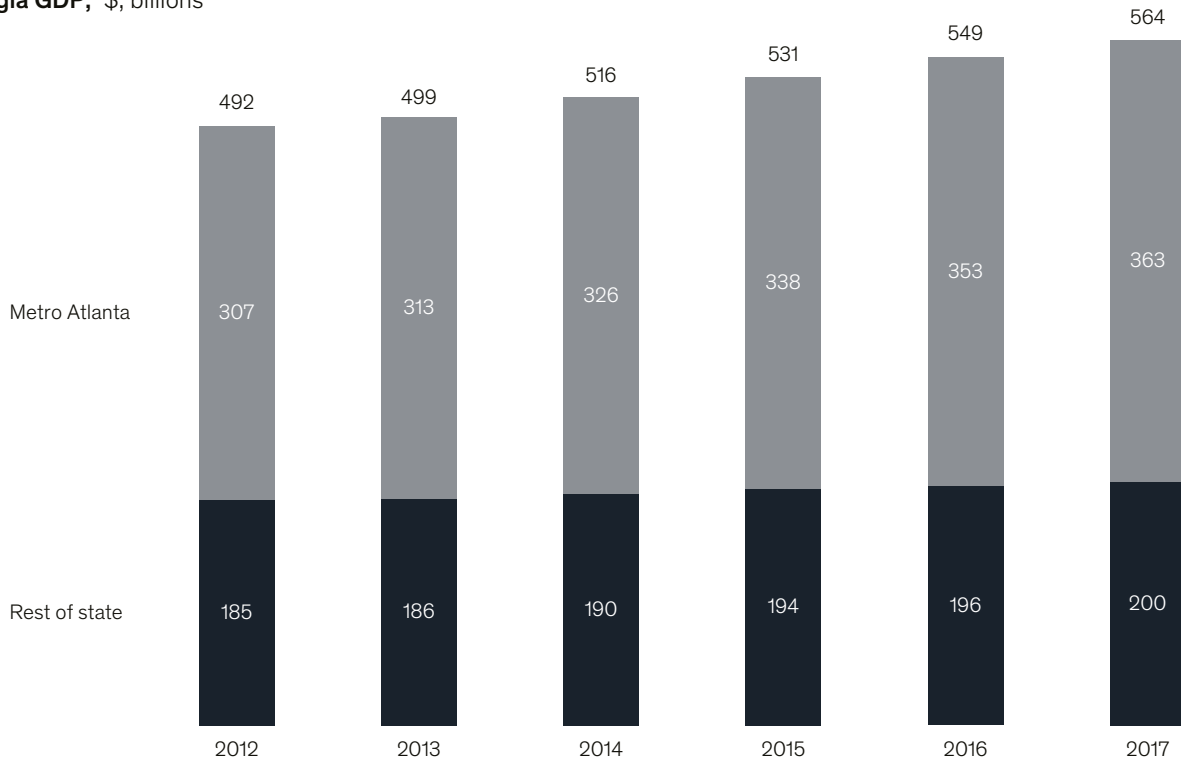
Nowhere have Georgia's strengths been more evident than in the Atlanta metropolitan area, which contributes 65 percent of the state's GDP with more than twice the economic growth rate of the remainder of the state (Exhibit 2).

Georgia's upward economic trajectory has been accompanied by significant growth in the state's population as the state has attracted, welcomed, and nurtured talent.

Exhibit 2

The Atlanta metropolitan area accounts for much of Georgia's economic growth.

Georgia GDP,¹ \$, billions



¹ In 2017 dollars.

Source: Brookings Institution; US Bureau of Economic Analysis, McKinsey Global Institute

Atlanta is not only the economic hub of Georgia; it is also a “superstar city” that attracts trade, investment, and talent from across the United States and around the world. According to the McKinsey Global Institute (MGI), global superstar cities boast an average GDP per capita that is 45 percent higher than that of peers in the same region and income group. Superstar cities’ share of global GDP has grown 30 percent over the past ten years: they contribute 21 percent of global GDP despite making up only 8 percent of the global population. They also are home to 45 percent of large companies, accounting for 70 percent of multinational corporations’ R&D investment.¹⁰ Given Atlanta’s superstar status, it is not surprising that the city commands a leading position within its state.

Clouds on the horizon

Growth continues to be an important factor in the state economy because it creates new opportunities for Georgia’s citizens. As measured by GDP, growth is driven by two factors: the working population and the productivity of those workers—how much each person produces, on average, for a unit of work. When we disaggregated GDP growth in Georgia, we found some patterns that raise concerns about the sustainability of economic performance.

Most prominently, for years Georgia’s growth formula has depended on expanding the working population, which included significant numbers of workers from outside the state and country. But arrivals to the state have slowed—in recent years, net in-migration has been approximately 60,000 a year, down from a peak of about 160,000 prior to the 2007 recession.¹¹ At the same time, the percentage of

Georgians participating in the workforce has been declining. This puts one source of growth, a growing working population, at risk. At the same time, by most economic measures Georgia is experiencing full employment. Nearly everyone in the labor force is currently employed, and many of Georgia's businesses are struggling to fill openings (Exhibit 3).

Exhibit 3

Georgia employers cannot find enough suitable workers for key occupations.

Employment in Georgia, 2018

Occupation	Demand:supply ratio, %	Job openings, thousands	Unemployment, ¹ thousands
Healthcare practice and technical	1,036	20.3	2.0
Computers and mathematics	931	22.2	2.4
Business and financial operations	378	14.9	3.9
Architecture and engineering	350	4.8	1.4
Management	334	20.9	6.3
Transportation and material moving	283	28.8	10.2
Legal	255	1.2	0.5
Installation, maintenance, and repair	227	6.3	2.8
Life, physical, and social sciences	208	1.1	0.5
Community and social services	198	1.5	0.8
Sales and related	177	22.3	12.6
Arts, design, entertainment, sports, and media	136	3.3	2.4
Office and administrative support	134	16.7	12.6
Protective services	104	1.6	1.5
Healthcare support	101	2.7	2.6
Education, training, and library	94	4.0	4.3
Food preparation and serving related	87	8.6	9.9
Personal care and service	69	3.5	5.1
Production	65	3.8	5.9
Building and grounds cleaning and maintenance	38	2.3	6.1
Construction and extraction	16	1.8	10.9
Farming, fishing, and forestry	9	0.1	0.7

¹ Number of unemployed by previously held occupation.

Source: Emsi 2018 labor market data

To maintain growth, these jobs need to be filled. But at 63 percent, workforce participation in Georgia (the percentage of people in the state participating in the labor force) lags behind that of other states and is well below its peak of 68 percent in 2007 (Exhibit 3). Moreover, active workers are working fewer hours. To sustain growth, Georgia will need to expand its workforce.

Beyond workforce concerns, many of Georgia's economic challenges are concentrated outside of the Atlanta metropolitan area. Growth in the rest of the state trails the national average, and the majority of ex-Atlanta metropolitan areas has not kept up with peer metros outside Georgia.¹² Many factors contribute to this disparity, including inadequate healthcare, insufficient education, and infrastructure that is unequipped to meet the state's transit and information needs. Without investing in resources beyond the Atlanta metro area, Georgia will likely leave potential growth—and opportunities to employ workers—on the table.

Georgia is already missing one opportunity to boost growth. While mature firms flourish and many new companies are launching, young companies struggle to survive and grow. Studies confirm that Georgia is underperforming: the state ranks 45th nationally in start-up survival rate and 30th in the percentage of start-ups that scale up to 50 or more employees.¹³



A new growth formula

Many Georgia residents and firms, particularly in regions outside the Atlanta metro area, have not benefited from the state’s overall growth. At the same time, the evidence demonstrates that Georgia can update its growth formula to unlock more productive capacity and sustain economic growth. Government, community, and business leaders can work together to create a more inclusive economy—one that benefits more workers, more areas of the state, and a broader range of firms.

Economic inclusion in Georgia will depend on these key improvements:¹⁴

- *An expanded workforce* that is healthier, better trained, more connected, and fully utilized. This could bring nearly 400,000 additional workers into the workforce and increase weekly hours worked by 1 percent.
- *Revitalized regions* that support industries in which they have unique structural and competitive advantages. This could stimulate more than \$13 billion in incremental growth outside Atlanta.
- *Diverse sizes and types of firms* that can grow, scale, and thrive throughout their lifespan. This could help an additional 15,000 firms survive past five years and about 1,000 more firms grow to over 50 employees.

Expanding Georgia’s productive workforce

Over the past five years, Georgia’s GDP growth has helped bring the state’s unemployment rate below the national average. By most economic measures, the Georgia economy is at full employment. But in-depth analysis reveals that economic growth has been constrained by factors that limit the number of residents who actually participate in the workforce (see sidebar, “The workforce participation rate and the unemployment rate”).

Indeed, a significant amount of Georgia’s economic growth stems from population growth. The population was 10.4 million in 2017, up from 9.5 million in 2007, resulting in an increase in the number of employees in

the state. But population growth may no longer be sufficient for sustained economic growth. Over the past four years, annual in-migration averaged about 60,000,¹⁵ which falls behind pre–Great Recession highs (160,000 in 2006 and 120,000 in 2007). Meanwhile, the Georgia economy created 113,000 jobs in 2018,¹⁶ which would require in-state talent as well as new arrivals to fill them. In spite of this demand for talent, workforce participation decreased 5 percentage points over the past decade, costing Georgia about \$45 billion, or 8 percent, in potential annual economic output.¹⁷

At first glance, Georgia’s economic performance seems to suggest that the workforce is not living up to its potential. Per-employee productivity growth in Georgia has lagged behind that of other states, trailing the US average by 8 percent; it is lower than the national average for 16 of 20 major sectors.¹⁸ However, the cause of this decline is a decrease in weekly hours per worker, not worker output. In fact, hourly productivity has increased by 5 percent over the past ten years, while the average weekly hours worked has decreased by 3 percent,¹⁹ costing the state over \$15 billion in annual economic output.²⁰

Georgia’s productive capacity is further hampered by underemployment—when workers can only find positions that are part-time or do not fully use their skills—of residents who are willing and able to work. With nearly 8 percent of its workforce unemployed or underemployed, Georgia ranks 29th among states in this metric.²¹ Four percent of workers are marginally attached to the workforce or working part-time while seeking full-time work.²²

Sidebar

The workforce participation rate and the unemployment rate

The unemployment rate is a standard measure of labor-market activity, but the participation rate is also an important metric. Both revolve around the definition of the labor force—the total number of people employed or not employed and seeking work. While the unemployment rate is a function of workforce participation, the participation rate measures the size of the labor force itself.

Unemployment measures the number of jobless people who are actively seeking employment as a percentage of the labor force.

This distinction has implications for workforce discussions in Georgia, particularly in areas where large numbers of workers have given up on finding work or are not healthy enough to work. For instance, residents who are on disability due to health problems are not included in unemployment figures because they are not actively seeking employment, but they are included in the participation rate. With this additional nuance, the participation rate can help paint a more complete picture of the health of Georgia’s economy.

$$\text{Unemployment rate} = \frac{\text{Number of unemployed people actively looking for work}}{\text{Total number of people working or actively looking for work}}$$

The participation rate, on the other hand, reflects the size of the labor force as a percentage of the overall working-age population.

$$\text{Workforce participation rate} = \frac{\text{Total number of people working or actively looking for work}}{\text{Total working-age population}}$$

Economic growth has been constrained by elements that limit the number of residents who actually participate in the workforce.

The persistence of pockets of unemployment, underemployment, and lagging workforce participation across the state—even in Atlanta, the state’s economic engine—suggests that underlying structural issues are at work. Some of those issues stem from longstanding institutional forces, including many that can be traced to historical racial segregation and planning. Our analysis suggests that structural factors around health, accessibility, and education and training also contribute to unequal economic performance in Georgia.

Health

Poor health outcomes—defined by a reduction in quality-adjusted life years—²³ restrict both the size of the workforce and the ability of workers to engage in full-time work.²⁴ According to a McKinsey analysis of county-level data in Georgia, health outcomes account for 64 percent of the variation in local unemployment rates.²⁵ Ranked 42nd among US states for health outcomes and the ability to meet citizens’ healthcare needs, Georgia has one of the highest uninsured rates in the country, at 13 percent.²⁶ Of Georgia’s 118 rural counties, 79 lack an obstetrician-gynecologist,²⁷ 64 have no pediatrician, and nine have no physician at all.²⁸ Outside economically robust metros, the state has room for improvement in providing adequate healthcare services to residents.

The state’s rural healthcare challenges are caused in part by economic forces, and a focused approach can help to overcome them. Access is a critical need, but health outcomes are also influenced by factors beyond access to clinical care. Social determinants of health—income, employment, education, food security, housing, social support, safety, and transportation—account for about 40 percent of the variation in health status among individuals.²⁹

Rural healthcare is both a challenge and an opportunity. On their own, improvements in traditional healthcare infrastructure and community health would likely increase workforce participation; when combined with efforts to address social determinants of health, they would have an even greater impact on health outcomes and employment rates, further fueling inclusive economic growth. This insight—that rural health outcomes require solutions beyond access to hospital-driven care—suggests that the state may be able to improve healthcare outcomes for its working-age population by targeting both access to quality healthcare and social determinants of health. Preventative care (including access to food), mental health services, and substance-use services are critical areas.

Stakeholders can address a community’s current and future needs by investing in rural healthcare infrastructure such as new health centers, virtual healthcare, or “human infrastructure” in the form of healthcare providers and affiliated professionals. One example of this type of targeted investment in rural healthcare is the replacement hospital slated to open in the summer of 2019 in Cook County, Georgia. The new hospital development is unique in its use of interagency resources, combining financial support from the county, the city, two local economic development organizations, and a US Department of Agriculture Rural Development loan. Moreover, stakeholders in the hospital’s development are focusing on the needs of the community as well as on economically viable solutions for the new hospital.³⁰

To improve on Georgia's bottom-quintile ranking for health access and outcomes, the state can expand programs such as loan forgiveness for physicians working in underserved rural counties and the Georgia HEART program, which provides up to \$60 million in tax credits to individuals and corporations for donations to qualified rural hospitals. Other states have made efforts to expand virtual access to healthcare—for example, the University of Mississippi Medical Center's Center for Telehealth has set up specialty clinics throughout Mississippi and is undertaking policy research as part of its designation as a National Telehealth Center of Excellence.³¹ Georgia, on the other hand, is among the most restrictive states regarding access to telemedicine and other virtual healthcare delivery methods.³²

Accessibility

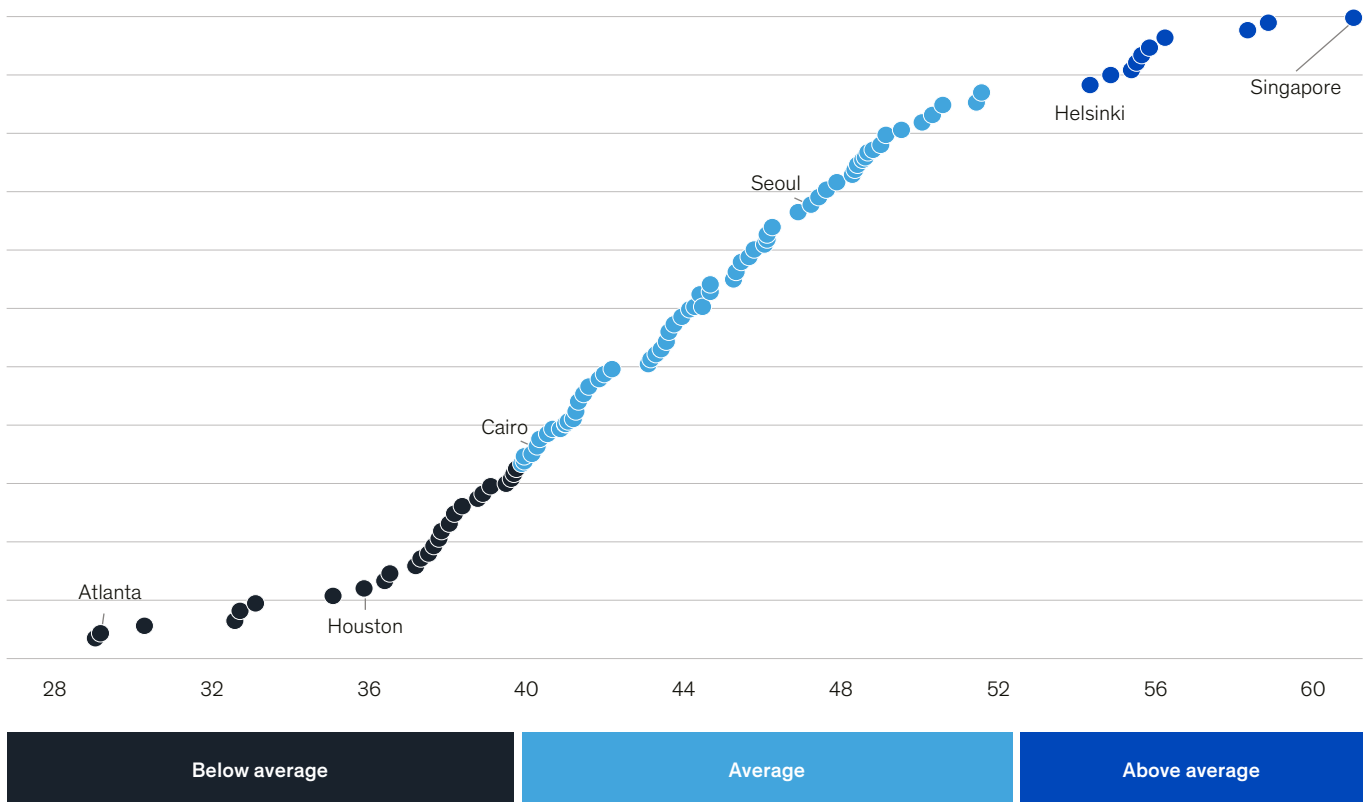
While on balance the state's infrastructure has been a boon to its economy, and existing roads are in good shape, overall Georgia's transit infrastructure is insufficient. The result is limited physical access to employment opportunities that hinders residents' ability to find meaningful work. The accessibility gap is particularly visible in Atlanta, which ranks 99th out of 100 among global cities for transit accessibility.³³ The city's poor transit infrastructure and long travel times place the state behind US peers such as Houston and Dallas and international cities such as Delhi and Tehran (Exhibit 4).

Exhibit 4

Georgia will need to address its underdeveloped urban mobility and transit infrastructure.

Atlanta ranks 99th out of 100 global cities for urban mobility

City mobility indexed to other international cities¹



¹ Based on maturity (eg, road density, public-transport frequency), innovation (eg, car-sharing), and performance (eg, mean travel time to work, traffic-related fatalities) metrics.

Source: Arthur D. Little Mobility 3.0; US Census Bureau, 2013–2017 American Community Survey 5-Year Estimates

The results of poor accessibility are reflected in the uneven geographic distribution of prosperity in Atlanta. The city's Fortune 500 companies are concentrated in northern Atlanta. Meanwhile, for both structural and historical reasons, unemployment is concentrated in the southern and western parts of the city and immediate suburbs, where in many zip codes the poverty rate exceeds 30 percent.³⁴ Poverty also means the workers of southern Atlanta—20 percent of whom commute by mass transit—are more likely to depend on public transportation.³⁵ But their options are limited by insufficient transit access to jobs—fewer than 2,000 jobs are accessible within 30 minutes of travel for many in this area, compared to over 50,000 for those who live near job centers or near public rail stations.³⁶ As a result of insufficient transit and uneven distribution of economic opportunity, 45 percent of Atlanta transit riders—and only 11 percent of drivers—spend more than two hours a day commuting.³⁷

Improving transit mobility for those who need it most has been shown to increase GDP growth by 1 to 2 percent.³⁸ For residents who can't afford a car, reliable public transit increases workforce participation by providing access to both suburban and urban opportunities.³⁹ In fact, workers could realize up to \$1.8 billion in estimated annual wage increases per metropolitan area as a result of a 10 percent increase in transit seats or rail service miles per capita.⁴⁰

As Georgia's leaders make plans to upgrade transportation infrastructure and improve accessibility, they can adopt strategies from a variety of successful efforts from around the country.

Optimize capital spending. Building and maintaining infrastructure is costly, but the impact of that investment can be raised by up to 60 percent; MGI has identified a series of steps that can help states stretch infrastructure dollars, including optimizing project portfolios to prioritize investments with the greatest benefits, streamlining delivery to save time and money, and making the most of existing infrastructure instead of investing in new infrastructure.⁴¹

Commit to investments that improve transit. Houston has seen double-digit increases in bus and rail ridership since 2012 as a result of improvements to its transportation network. In 2018 the city underscored its commitment to infrastructure by announcing a plan to spend \$7.5 billion on over 40 transit projects by 2040, including nearly doubling its current 22.7-mile light-rail network (see case study, "Prioritizing transit spending: Houston").

Capitalize on public-private partnerships. Given the complexity and duration of large-scale infrastructure programs, state governments often consider bringing on partners. Infrastructure projects can be supported through the US Department of Transportation's Build America Bureau and with funds made available by the Transportation Infrastructure Finance and Innovation Act (TIFIA). For example, the I-77 Express Lane project in North Carolina added 26 miles of variably priced lanes along I-77 near Charlotte. The project cost \$650 million, most of which was financed through a package of private bonds, a TIFIA loan, public funding, and equity contributions.⁴² A collaboration with private developers reduced project costs by an estimated \$30 million compared with having the North Carolina Department of Transportation fully own development on an accelerated timeline.⁴³

Education and workforce training

Georgia's economy has a significant mismatch between workforce skills and labor market needs; a large number of potential workers lack the skills to fill open roles. This mismatch keeps some residents out of the full-time workforce while leaving high-demand, high-opportunity roles unfilled. High-skill sectors—such as healthcare, computation, and mathematics, which are growing 15 percent or more a year—currently have ten openings for every qualified candidate in Georgia who is looking for work (Exhibit 5). Meanwhile, nearly five times the number of low- to midskilled workers are seeking employment compared with high-skilled

Prioritizing transit spending: Houston

In 2012, Houston METRO launched an effort to better address the public transit needs of its fast-growing population. A significant victory came in 2015, when METRO reworked its bus network. The new network emphasized frequency and coverage efficiency, with increased service on routes with the highest ridership. The new routes also decreased redundancies by orienting the network around multiple centers throughout the metro area instead of centering the network on the downtown area. Because the changes to the bus network did not require significant additional costs, implementation happened literally overnight.

The results came quickly. From September 2015 to July 2016, the METRO system saw a 6.8 percent increase in overall local ridership, including a 1.2 percent increase in bus ridership. Since the initiative launched in 2012, Houston has seen a 12 percent

increase in bus and rail ridership. Such results are especially impressive against a background of falling transit ridership nationwide.

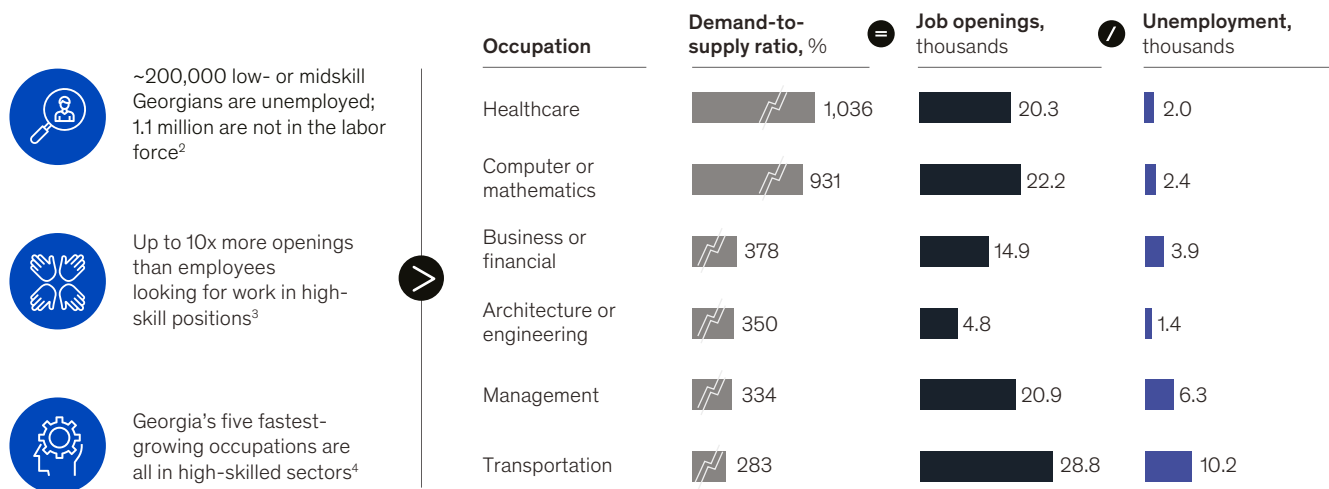
Building on its early successes, Houston METRO announced in 2018 that it would spend \$7.5 billion to complete over 40 transit projects by 2040. One key goal is to reduce travel time between major residential and business hubs, especially in areas where transit demand is high or projected to be high. Solutions include 20 additional miles of light rail, a 25 percent increase in overall bus service, direct service to Houston airports, and new park-and-ride lots.

Houston's methodical investments in improving transit are facilitating travel between major residential and business districts, increasing transit ridership, and expanding residents' access to economic opportunities.

Exhibit 5

Pockets of the state's workforce do not possess the skills employers need.

Demand exceeds supply in top occupations,¹ 2018



¹ Top six occupations by demand-to-supply ratio according to Emsi (2018); unemployment corresponds to number of unemployed by previously held occupations.

² Includes civilians population aged 25–64, excludes those within the armed forces; low- to midskill defined as lacking a bachelor's degree or more.

³ Occupations including healthcare, computers, and mathematics (see chart).

⁴ Business and financial operations; computer and mathematical; architecture and engineering; life, physical, and social science; legal occupations.

Source: US Census Bureau, 2013–17 American Community Survey 5-Year Estimates; Emsi (2018); Georgia Department of Labor

workers. This imbalance highlights the importance of the state's focus on education and targeted vocational and workforce-training programs to address workforce skills gaps and create the right conditions for the economy to grow.

Both employers and workers in Georgia would benefit from a stronger education system. Throughout the state, Georgia could expand prekindergarten through high school curricula to nurture skills in disciplines such as science, technology, engineering, and math (STEM) that are projected to be in high demand. A stronger pipeline from high schools to targeted vocational programs could also help address skill mismatches. Universities, especially outside Atlanta, could also benefit from the state's help in connecting students and graduates with prospective employers.

Numerous public and private stakeholders are working on solutions to improve Georgia's education system. The focus of this report is not to recommend specific solutions, but an overview of effective approaches helps underscore the importance of successful efforts to Georgia's economic growth. The following high-impact initiatives have been effective in other states:

Expand targeted reskilling programs based on employer needs. Reskilling unemployed workers and residents who are out of the workforce to meet current labor needs could improve participation and employment, particularly for citizens with skill sets in declining industries. In sectors with higher employment levels than job openings, such as construction, there is an opportunity to reskill about 19,000 unemployed workers in Georgia. In fields where there are significantly more openings than job seekers, such as healthcare, about 86,000 unfilled positions could be filled by reskilled workers.⁴⁴ While Georgia has a top-ranked workforce-development program, QuickStart, the state's fastest-growing occupations are all in high-skill areas where labor demand is greater than supply.

An example of a successful workforce-training program is Louisville's KentuckianaWorks, which oversees Greater Louisville's career development centers and programs aimed at helping job seekers access training and find employment. KentuckianaWorks supports individuals across populations, including youths in the court system, disabled individuals, and welfare recipients. Between July 1, 2017, and June 30, 2018, it placed about 3,000 workers in jobs, expanded the workforce by about 0.5 percent, and achieved a \$61 million return on investment.⁴⁵

Bolster vocational training programs. Vocational training programs have been shown to produce higher workforce participation and lower unemployment.⁴⁶ Georgia already has a strong base of vocational programs and has invested in expanding educational programs for in-demand skills. For example, the Technical College System of Georgia includes some of the top-ranking two-year colleges in the country. And the state-issued grants, including the HOPE Career Grant, cover up to 100 percent of tuition for students pursuing a career in one of 17 high-demand fields, including computer technology, health sciences, and early-childhood education.⁴⁷ But there is room for improvement. Georgia could adopt best practices from Finland and other countries that have more robust vocational training programs than the United States. The following practices are particularly successful:⁴⁸

- encouraging companies and other key stakeholders to collaborate in vocational training by participating in curriculum design, training, mentoring, and more
- educating parents about the benefits of vocational training through publicity campaigns
- integrating both on-the-job training and lifelong learning into vocational programs to ensure that graduates are not only job-ready but also able to adapt to changing workplace demands

Intensify efforts to improve pre-K–12 education and add critical skills to curricula. Research demonstrates that state investment in education can drive improvements in productivity.⁴⁹ This insight has particular relevance in Georgia, where demand for high-skill workers is consistently strong. Boosting the state’s K–12 system out of its 35th-place ranking,⁵⁰ particularly in areas in need of high-skill workers, would unlock further growth. Recent state government actions, including giving teachers a \$3,000 raise, are helpful steps. But additional work, such as expanding curricula and programs to teach the skills needed to meet projected employer needs, is likely to be necessary to improve the overall educational system and realize potential long-term gains—and will require cooperation between state and local stakeholders.

Revitalizing regions beyond Atlanta

Georgia’s economic success has been propelled in large part by the Atlanta metro area. Home to half of Georgia’s population, metropolitan Atlanta contributed two-thirds of the state GDP and 79 percent of total growth from 2012 to 2017.⁵¹

Indeed, the Atlanta metro area benefits from many cumulative advantages. The city attracts new-business investment while retaining successful existing businesses and nurtures a strong pool of local talent. Home to 21 Fortune 500 headquarters, the area ranks seventh among US metropolitan areas in attracting college graduates from other areas and fifth at retaining local graduates; 73 percent of Atlanta-area students who graduate from institutions such as Georgia Tech University and Emory University remain in Atlanta.⁵² As a result of these favorable factors, Atlanta’s GDP growth rate from 2012 to 2017 (3.4 percent a year) easily surpasses that of the rest of Georgia (1.6 percent a year). It also exceeds the growth rate of other large US metros (2.5 percent a year) and of the United States overall (2.0 percent a year).⁵³

But while Atlanta is thriving, much of the rest of the state is not. Only one metro area (Gainesville) has met or exceeded Atlanta’s growth over the past five years, and the majority of Georgia’s metros trail peer metro areas in other states, with Augusta (1.4 percent growth a year) and Columbus (0.4 percent growth a year) falling even further behind. These areas also generally have higher unemployment, lower population growth, and more limited access to high-growth industries and opportunities (Exhibit 6).

The concentration of economic activity, resources, and growth in major metropolitan areas is typical throughout the world. When areas outside major cities thrive, it’s often because they are well connected to nearby metropolitan growth engines. In this regard, other regions around the world provide a template for Georgia; rather than think about Atlanta *or* the rest of the state, Georgia has an opportunity to think about Atlanta *and* the rest of the state by better connecting the two. Today, Georgia ranks 28th in the United States in physical connectivity and 35th in broadband connectivity—⁵⁴suggesting that the state lacks the infrastructure that could more effectively connect the Atlanta growth engine to the rest of the state’s workforce.

At the same time, industries disproportionately focused outside Atlanta—chiefly manufacturing—are seeing slower growth than other industries. For example, manufacturing’s contribution to state GDP declined from 12.0 percent in 2007 to 10.9 percent in 2017, with especially significant declines and job losses in apparel and textiles.⁵⁵

Manufacturing is experiencing declines throughout the United States, which suggests that Georgia is unlikely to stimulate growth outside Atlanta entirely through legacy industries. To compensate, the state can consider creative solutions to expand growing and productive sectors.

Two key levers, therefore, can help revitalize Georgia’s regions: a stronger statewide infrastructure and a focus on targeted high-growth sectors that could benefit from the state’s competitive advantages. These two areas hold significant promise for the state and for each other.

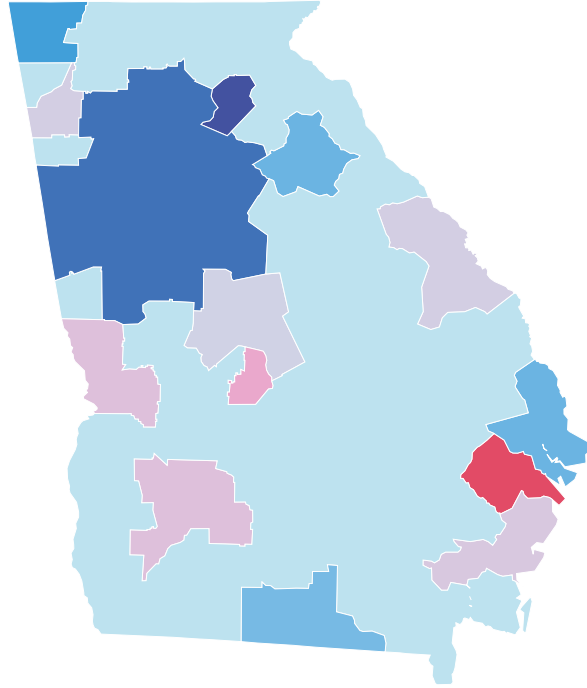
Exhibit 6

While growth in Atlanta has been strong, the rest of the state has struggled to keep up.

Georgia GDP growth by metropolitan statistical area (MSA)¹

% GDP compound annual growth rate (CAGR), 2012–17

-1.3 4.1



Note: A SOC 2+GDPR report may potentially be submitted to clients and maybe even regulators. An independent party (PwC) has come in and assessed their compliance, a move that demonstrates to regulators that the company takes this seriously. This report works with the National Institute of Standards and Technology Cybersecurity Framework

¹ All areas outside of MSAs are colored in accordance with state GDP growth; all MSA growth at 1.8% CAGR.

Source: US Bureau of Economic Analysis; US Census, 2013–2017 American Community Survey 5-year Estimates

Expand statewide infrastructure

Activating Georgia’s full potential depends on strong connections among cities and regions to smooth the movement of goods, people, and information. To date, Georgia’s infrastructure strengths have been focused on moving goods—extensive networks of highways, ports, and freight rail traverse the state, particularly outside of Atlanta—while regional mobility and information infrastructure have received less attention. Across all infrastructure categories, Georgia’s annual investments in infrastructure have fallen short of the levels required for maintenance (Exhibit 7). In 2015, the Georgia legislature passed the Transportation Funding Act, which allocated about \$900 million a year in additional funding for transportation infrastructure. This move is a good start but is not enough on its own.

To maintain its infrastructure and to support growth, Georgia would need to boost infrastructure spending by an additional \$6 billion to \$8 billion a year (spread among public and private stakeholders).⁵⁶ The reward would be well worth the investment: each dollar of infrastructure investment can raise GDP by 20 cents in the long run through increased productivity.⁵⁷

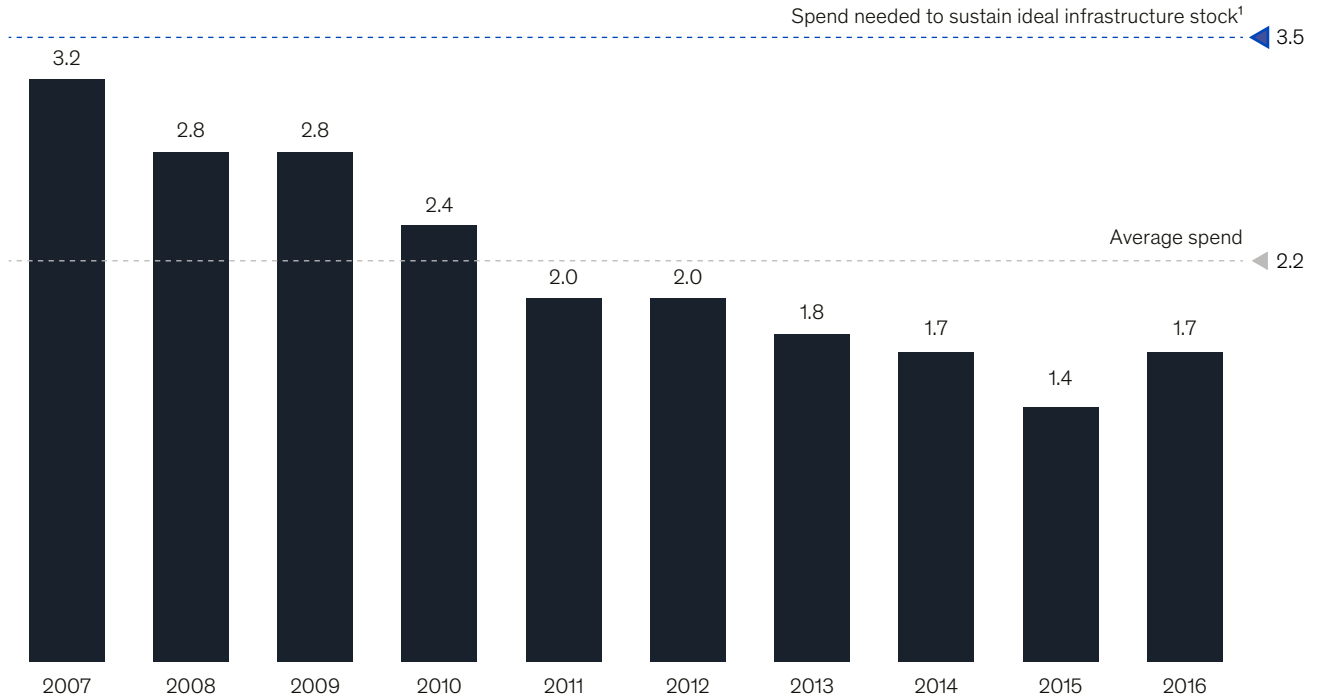
While Georgia has taken initial steps to address key infrastructure issues, additional actions are likely needed to close the infrastructure gap and spark inclusive growth. Two areas hold significant potential:

Explore expanded broadband internet coverage to enable business productivity. A recent study of Florida found that the introduction of broadband internet access in counties previously without coverage increased

Exhibit 7

Georgia’s annual infrastructure spending has lagged behind.

Georgia infrastructure spending,² % of GDP, 2007–16³



¹ Based on national expected GDP growth, ideal stock level of 71.0% and depreciation rate at 2.5%. Infrastructure investment need is defined as spend needed to support growth while maintaining an asset-to-GDP ratio of 71.0% including depreciation.

² Based on state and local government finances for Georgia from US Census Bureau 2007–16 and total capital outlay each year for combined Georgia state and local governments.

³ Most recent year of available data from US Census.

Source: Center on Budget and Policy Priorities; US Bureau of Economic Analysis; US Census; McKinsey Global Institute

economic growth by as much as 100 percent.⁵⁸ This finding has direct relevance for Georgia, where just 75 percent of residents have broadband access,⁵⁹ putting the state 35th in the nation in broadband access.⁶⁰ Georgia’s rural areas fare especially badly, trailing urban access by about 30 percentage points.⁶¹ In response, Georgia’s legislature recently passed the Achieving Connectivity Everywhere Act to provide broadband throughout the state. The project is still in the planning phase, but its development and implementation could have a significant positive impact on the state’s economy.

Consider regional transit and physical connectivity. Investments in connectivity could produce network effects that increase productivity and growth in adjacent regions. Georgia currently ranks 37th in transit spending per capita; a lack of bus and rail lines between cities undermines intercity connectivity.⁶² While the Georgia Department of Transportation designated \$5.4 billion from 2016 to 2021 to improve roadways and bridges, transit projects outside of the Atlanta area have been limited.

Consider emphasizing high-potential, high-growth sectors

Regions with slow growth and declining industries have had a negative impact on Georgia’s rural economy. Without opportunities in growing sectors, economic expansion will fall short of its potential. Georgia could consider solutions in three distinct sectors to capitalize on conditions that are unique to Georgia.

Target growing manufacturing subsectors where Georgia is likely to be well positioned. As in much of the United States, Georgia’s manufacturing sector is struggling. But some businesses in the sector

have thrived, fueled by the state's competitive advantages, particularly in transportation and logistics. Georgia's transportation industry is growing fast—it grew by 3 percent a year over the past five years and is projected to grow 4 percent a year over the next ten years—and it shows strength outside of Atlanta in metros such as Augusta, Brunswick, and Savannah.⁶³ In addition, other Georgia metros that are historically not transportation hubs, such as Gainesville, have grown by linking manufacturing and logistics to their transportation advantages. Our analysis suggests that state stakeholders could identify and nurture additional pockets of growth through similar means to bolster faster-growing manufacturing sectors.

Georgia's strength in logistics has already attracted international manufacturers to the state. Kia, for instance, cited Georgia's transportation infrastructure as a crucial factor in its decision to produce its new Telluride SUV in West Point starting in 2019. Kia imports automotive parts in Savannah and ships its final products through Brunswick. Heavy use of Georgia's intrastate road and rail network will cut costs and improve operating efficiency within Kia's vertically integrated in-state supply chain. Kia's story may be a model for Georgia as it focuses on faster-growth manufacturing segments, such as transportation equipment (projected to grow at 3.7 percent a year), to attract investment to areas beyond metropolitan Atlanta.

While Georgia has long focused on attracting investment from established companies such as Kia, emerging sectors can also benefit from the state's unique advantages as a transportation hub. For example, the small but fast-growing additive manufacturing, or 3-D printing, sector does not yet have a clear geographic home—and it had \$9.3 billion in revenues and 18 percent year-over-year growth in 2018.⁶⁴ Researchers are investigating the use of natural materials such as wood cellulose in 3-D printing, which would take advantage of Georgia's wealth of timber. And like Kia, companies that design and produce 3-D printers could benefit from efficient in-state supply chains that are well connected to demand sources. By focusing its efforts on similarly positioned manufacturing sectors, Georgia could stimulate growth and innovation and create jobs in areas outside Atlanta.⁶⁵

Accelerate growth in healthcare. Healthcare is already one of the state's fastest-growing industries: the sector has grown by 2.7 percent a year in Georgia over the past ten years, compared with 2.4 percent a year in the United States as a whole. Demand for healthcare in Georgia currently outpaces supply by 13 percent,⁶⁶ especially outside the Atlanta metro area. This suggests that the industry has ample room to grow even more quickly throughout the state, including in rural Georgia.

Healthcare initiatives that would benefit the statewide workforce would also boost regional economies throughout Georgia. In addition to the ideas discussed earlier, efforts to address mismatches between community needs and available healthcare resources could support growth in healthcare jobs. For example, rural areas tend to focus on high-cost inpatient resources when they would be better off focusing on adding community and behavioral health resources. Potential solutions include expanding care beyond hospitals into settings such as virtual health and home-based care, partnerships with urban health systems and training programs, and expanded use of midlevel practitioners.

Explore investments in higher education. Institutions of higher education can be a highly effective economic development tool. Research has shown that colleges raise local levels of human capital by increasing both the supply and the demand for skills,⁶⁷ and universities' skilled workforces and research activities attract investment and boost local economic growth. In Georgia, every metro area that grew faster than 2 percent a year from 2012 to 2017 has an institution of higher education.⁶⁸ Investing in higher education could have a particularly strong impact in areas outside Atlanta—particularly in metros such as Valdosta (Valdosta State University), Macon (Mercer College), and Augusta (Augusta University)—where funding could expand institutions' research activity and maximize their economic impact. Investments could take the form of expanding facilities to allow for greater enrollment capacity combined with housing and

Connecting regions to stimulate growth: Gainesville

Strong logistics and transportation systems are recognized drivers of growth in Georgia, both in and outside the Atlanta metro area. For instance, robust rail and interstate connectivity between Atlanta and Savannah, the fourth-largest container port in the country, has created symbiotic growth. Similarly, deepwater ports based in Savannah and Brunswick have spurred economic growth in metros and neighboring regions that are connected through rail and interstate highways. The ports generate \$44 billion annually, and better connections with the rest of the state could bring additional economic growth.

Similarly, the manufacturing and agricultural hub of Gainesville has capitalized on Georgia's competitive advantages and is using strong transportation and logistics infrastructure to maximize growth. The

fastest-growing metro area in the state, Gainesville has experienced 4.1 percent growth a year over the past five years.

In December 2018, Georgia Ports Authority announced plans for a new inland port in Gainesville. This inland port expansion will invest in rail infrastructure not only to replicate Savannah's success in Gainesville but also to reduce the strain of cargo traffic on Atlanta's infrastructure. The announcement of a new port in Gainesville is already producing results. For instance, Auto Metal Direct, a worldwide auto-parts distributor, will build a \$15 million 318,000-square-foot facility in Gainesville as a partial result of the planned port.¹

¹"Georgia announces new inland terminal location," Georgia Ports, December 3, 2018, gaports.com.

other incentives for graduates to remain in the area; college-educated households spend at substantially higher rates than non-college-education households, and encouraging graduates to stay in the area can help cities capture that economic growth.⁶⁹

Including a wider array of firms in Georgia's growth

Georgia's probusiness environment has benefited both new and existing firms. Twenty-one Fortune 500 companies are headquartered in Georgia, up from just 12 in 2008, and over 400 conduct business in the state. Furthermore, Georgia is a magnet for new companies—since 2013, about 500 companies that employ more than 500 employees have relocated to Georgia from other states. The state also excels at launching new firms. About 8 percent of all companies in the state are less than a year old, the 11th-highest share in the nation. In 2017, Georgia created nearly 97,000 net jobs, a 2.6 percent increase in total employment that was stronger than in the United States overall (1.8 percent).⁷⁰

The numbers reflect strong GDP and job growth for the state, concentrated in new firms (less than a year old) and mature firms (ten or more years old). But compared with its peers, Georgia sees limited growth among growth-stage firms, defined as founded one to nine years ago. Just 1 percent of net employment growth comes from these firms, compared to 10 and 13 percent of net employment growth in North Carolina and Virginia, respectively, and 11 percent of net employment growth in the United States overall.⁷¹ Similarly, just over 1 percent of Georgia firms scale up to more than 50 employees ten years after they start (placing Georgia 30th in the nation for this category), and only about 46 percent of firms survive five years (making

Georgia 45th among all states).⁷² By addressing the root causes of firms' struggle to scale and survive, Georgia could generate significant labor demand and economic growth.

Research suggests that younger firms benefit disproportionately from increased research-and-development activity, better access to scale-up funding, and richer mentorship. And all of these factors are magnified when part of an economic cluster—when a dense network of companies and institutions forms. As we detail below, these elements have been shown to increase survival and growth among young companies.⁷³ Georgia can benefit from research-backed initiatives in all three areas, and has the potential for economic clusters in two key sectors.

R&D can promote innovation and growth for fledgling companies

Support for R&D boosts innovation, company growth, and business-survival rates, and R&D in both corporate and educational settings has been a rich source of ideas for start-ups nationwide. Indeed, analysis shows a strong correlation between the R&D background of a start-up's employees and its survival and growth. Moreover, support for R&D has been shown to increase innovation as measured by patent output, another important signifier of promise: patent-holding entities are 35 times more likely to survive than their peers with no patents.⁷⁴

As the state's 30th-place ranking in patents granted per capita suggests,⁷⁵ Georgia lags behind many other states in innovation. This shortfall is attributable at least in part to limited R&D funding—Georgia ranks 32nd in the United States in overall R&D investment as a share of state GDP, with state-funded R&D coming in at 46th nationally. While R&D funding from universities (17th) and businesses (29th) is slightly higher, the lack of a strong innovation ecosystem is holding the state back.⁷⁶ Some stakeholders have recognized the need to catch up and have taken steps toward closing the gap. The Georgia Research Alliance, for instance, has long supported university research and research-activated start-ups. Its funding is currently under pressure, however, limiting the organization's impact (see sidebar, "Catalyzing R&D: The Georgia Research Alliance").

Scale-up funding can help growth-stage companies

Many growth-stage companies would benefit from better access to scale-up funding. Georgia currently ranks 22nd in venture-capital investment as a share of GDP, behind Virginia and North Carolina.⁷⁷ Despite recent bright spots, such as increased venture-capital investment in 2017, funding levels fell 70 percent in 2018, disproportionately affecting expanding and later-stage companies. The state has implemented growth-funding incentives, but these efforts are limited and have not produced a significant response. And venture-capital funding, which provides capital for larger scale-up opportunities, is less helpful to smaller businesses seeking moderate growth. For such businesses, capital sources are limited in Georgia, particularly outside the Atlanta metro area. Venture-capital tax credits—expanding Georgia's focus from angel investors to more institutional investors—could boost the entrepreneurial funding ecosystem.

Georgia can benefit from research-backed initiatives in R&D, growth funding, and mentorship for entrepreneurs.

Catalyzing R&D: The Georgia Research Alliance

Founded in 1990, the Georgia Research Alliance (GRA) is a unique, nationally recognized partnership of research universities, industry, and government that aims to foster economic growth in Georgia by promoting R&D and supporting the state's innovation ecosystem.

GRA helps universities recruit world-renowned scientists, serves as a catalyst for creating collaborative centers of research excellence, invests in university research infrastructure and technology, and helps fuel the launch of new companies.

Compared with its peers at the national level, GRA has a more robust set of offerings, including permanent endowments, grants, and supplements to external R&D grants. GRA also coordinates lab and equipment purchasing and invests in research commercialization.

A leading public-private research partnership, GRA facilitates about \$530 million in R&D expenditure and 28 new patents each year by attracting talent, making key research infrastructure investments, and drawing federal and private research funding.¹ It has also provided funding to 180 active companies, which in turn have brought Georgia more than \$1 billion in equity investment, generated more than \$660 million in annual revenue, and employed more than 1,300 professionals.²

In 2018, GRA-supported scientists made some significant discoveries, including a faster way to heal brain tissue, stronger antibiotics, and an alternative to plastic wrap.³ GRA has also helped a number of companies successfully scale up. For example, GRA funding and mentorship fostered the growth of clinical intelligence platform Velocity Medical Systems. The company, which connects cancer imaging and treatment information, was acquired for approximately \$20 million in 2014.⁴

But Georgia's overall R&D environment has struggled. Despite a leading statewide research program, Georgia still falls behind its peers in R&D investment. This gap is due in part to limited state support for R&D—state investment in GRA dropped to \$5 million in 2018, down 80 percent from the historical average of \$25 million and 90 percent from its historical high of \$45 million.⁵

This dip in funding has limited GRA's impact. Additional resources could extend high-return investment in promoting R&D and financing R&D-backed entrepreneurship to propel additional discoveries and innovation-backed start-ups in Georgia. To bolster innovation in the future, universities, industry leaders and the government can work together to increase R&D spending.

¹ "Max Cooper may have saved your life," Georgia Research Alliance, gra.org.

² "Today's startups for tomorrow's economy," Georgia Research Alliance, gra.org.

³ "It happened in 2018," Georgia Research Alliance, gra.org.

⁴ Owler, January 2018, owler.com.

⁵ Maria Saporta, "GRA study: State needs to increase research funding," *SaportaReport*, October 30, 2017, saportareport.com.

Indeed, funding is the lifeblood of knowledge-based companies. Venture-capital funding, especially in later rounds, has allowed Georgia-based start-ups to grow. Young companies and firms that aren't typical targets for such funds may benefit from sources such as local innovation bonds. As described in the *Harvard Business Review*, these funds pool capital for start-ups that stay in the communities where they started, with funds paid off through a portion of revenues.⁷⁸ Georgia could be a good fit for such instruments.

Mentors can provide safety and support

Research suggests that mentors who can guide decisions, make connections, and help build business relationships make significant contributions to entrepreneurial activity: mentored businesses are twice

as likely to survive past five years and see stronger growth as their nonmentored peers.⁷⁹ Some Georgia businesses have access to mentorship opportunities, particularly in Atlanta—for example, the incubator Atlanta Tech Village and consultants from SCORE Atlanta link founders of early-stage start-ups with established entrepreneurs—but growth-stage firms are less likely to have these opportunities. In the interviews we conducted for this report, business leaders said that Georgia has a weak mentorship culture compared with other high-economic-activity states, and entrepreneurs in growing businesses sometimes have trouble identifying and locating mentors.

Economic clusters can power state growth

Regions often have sectors that form economic clusters—dense networks of companies and institutions that magnify innovation and entrepreneurship. These clusters can increase productivity, accelerate innovation, attract talent, and bolster formation of new businesses. To take advantage of clusters, states need to identify the areas in which they are positioned to succeed and then support the growth of those clusters. By targeting strategic sectors with additional investment, R&D, and mentorship, states can achieve disproportionate growth.

CASE STUDY

Company growth through capital funding: Tennessee

In 2013, as part of its effort to become the most start-up-friendly state in the country, Tennessee introduced Launch Tennessee, a public–private partnership that matches private funding for select companies and helps entrepreneurs build businesses and create jobs. Because capital funding is crucial during times of fast growth, Launch Tennessee stakeholders focused on improving access to capital for growth-stage companies. This funding allows companies to invest in assets such as talent, ongoing product development, and equipment—investments designed to help companies grow sustainably.

The most successful initiative within Launch Tennessee has been the INCITE Co-Investment Fund, which has match \$29 million of federal funding to \$87.8 million in private investments in Tennessee-based companies. Other capital-funding initiatives include grant matching for R&D activities, an impact fund that invests in double-bottom-line

ventures (companies whose profit-making activities also have positive social or environmental impacts),¹ and a tax credit for angel investors.

Launch Tennessee has significantly improved the performance of Tennessee’s start-ups; since the program’s start, Tennessee has shot from 18th place to 10th among large states in the Kauffman Foundation’s ranking of environments for growth entrepreneurship.² Within the state, the INCITE fund has had an economic impact of \$1.25 billion, attracting \$88 million in private capital and \$79 million in follow-on capital in the process.³ Such initiatives demonstrate that the targeted investment of public funds can stimulate private investment in desirable sectors and unleash additional growth.

¹ "Investor Programs," Launch Tennessee, April 2019, <https://launchtn.org/investor-programs/>.

² The Kauffman Index, Kauffman Foundation, kauffman.org.

³ *Launch Tennessee: FY2018 Annual Report*, Launch Tennessee, November 2018, launchtn.org.

How a public–private partnership can boost entrepreneurship

Engage Ventures, a mentorship-driven venture fund founded in 2017, demonstrates how a public–private partnership can meet the need for mentorship. The fund is a consortium of 11 Fortune 500 companies with headquarters or a major presence in Georgia,¹ Georgia Tech, and Invest Georgia (the state-funded investment program aimed at spurring start-up activity). The fund gives start-up founders access to Fortune 500

executives, pairing growth funding with a focus on mentorship—two of the key gaps in Georgia’s entrepreneurial ecosystem. Engage Ventures is new enough that measuring outcomes is difficult, but the organization has made at least 20 investments to date and represents an important step toward collaboration between public and private stakeholders to improve Georgia’s environment for growing companies.

¹ Matt Walljasper, Engage Ventures, *Atlanta Magazine*, October 29, 2018, atlantamagazine.com; “The UPS Store makes ‘mentoring month’ matter,” UPS Store, January 9, 2014, theupsstore.com.

CASE STUDY

How a strong mentorship culture can boost sector growth: New York City

New York City’s ethos of business mentorship and accessible interpersonal connections translated easily to its start-up scene in the early 2000s, when the city’s technology start-up sector was solidifying. Interviews with 700 New York–based technology founders from that era suggest that mentorships and the resulting professional relationships grew as a result, and intergenerational collaboration became the norm. Indeed, founders indicated that business owners who were mentored by a top-performing entrepreneur were 3.3 times more likely to succeed than those who were not.¹

This combination of mentorship, collaboration, and connection created a virtuous cycle. As their start-ups became more successful, founders who had benefited from mentoring worked with up-and-coming founders in turn. For example, LinkShare founders Stephen and Heidi Messer have directly mentored founders of 11 other technology start-ups, helping them make crucial connections, grow, and achieve stability.²

This mentorship culture has been a major contributing factor to the growth of the New York start-up scene. Investment funding grew 13.3 percent from 2003 to 2013, almost twice the rate of investment-funding growth in Silicon Valley (6.4 percent a year) and far surpassing that of Massachusetts (–1.3 percent a year). Indeed, New York–based start-ups won \$76 billion in venture-capital investment in 2016—11 percent of the US total.³

As the CEO of a major Atlanta-based company told us, his or her counterpart in Silicon Valley would be expected to mentor “seven or eight” start-up founders, but Georgia lacks such a mentorship culture. Of course, New York City has advantages such as a large, diverse workforce and proximity to major financial institutions. But increasingly, Atlanta also fits this description. Culture change takes time, but New York’s example indicates that a commitment to mentorship can boost economic growth in a sustainable way.

¹ M1 AT&T, Chick-fil-A, Cox Enterprises, Delta Air Lines, Georgia-Pacific, Georgia Power Foundation, Goldman Sachs, Intercontinental Exchange (ICE), Invesco Ltd., Home Depot, and UPS.

² Success is defined here as exiting through an acquisition of more than \$100 million, gaining investor traction and performing in the top 10 percent of peer group in the amount of equity funding raised, and performing in the top 10 percent of peer group in the number of employees.

³ “Endeavor Insight and the Partnership for New York City Release ‘The Power of Entrepreneur Networks’ Study of Nearly 700 Industry Trailblazers,” *Endeavor*, November 12, 2014, endeavor.org.

Georgia is already home to 115 cybersecurity companies; in 2018, it opened the Georgia Cyber Center to build on this concentration, attract more employers, and train workers.

Georgia has a proven track record in supporting clusters such as film production, transportation, and wholesale trade. For example, Georgia targeted the film industry and took decisive action to turn it into a major source of economic growth. In 2008, the state legislature identified film as a potential area for growth and passed favorable tax incentives, including a 20 to 30 percent credit on productions of greater than \$500,000 located in Georgia. Furthermore, the state and municipalities have been extremely responsive in accommodating logistical demands, such as closing down bridges or streets for filming when necessary.

Since the tax credit was implemented in 2008, Georgia's film industry has grown from \$68 million in spending to \$2.7 billion in 2018—an increase of about 4,000 percent in ten years. Equally important, this growth has spurred investments: the Georgia Film Academy was established to train aspiring crew members, and Pinewood Studios has invested in permanent studios in the state. In 2018, the film industry generated \$9.5 billion in total economic impact and created more than 92,100 jobs, with no cost to the state other than tax credits.

Analysis suggests that a similar approach could jump-start growth in other economic clusters, including cybersecurity and financial technology:

Cybersecurity

Companies' growing reliance on technology has been matched by the rising threat of cyberattacks, fueling growth in the cybersecurity industry. While the national economy is projected to expand at 2 percent from 2016 to 2022, spending on cybersecurity is estimated to grow at 9 percent a year.⁸⁰ This growth will be sustained by the increasing numbers of devices, networks, and digital assets that are vulnerable to attack.

Georgia has several advantages that can help establish the state as a cybersecurity hub. Atlanta has extensive fiber access and ranks in the top five US markets for total bandwidth, while also serving as a hub for the country's two largest fiber trunk lines, which feed to Asia, Europe, and South America.⁸¹ And Georgia Tech has a strong program in this branch of computer science instruction and research.⁸² What's more, Georgia is already home to 115 cybersecurity companies; in 2018, it opened the Georgia Cyber Center to build on this concentration, attract more employers, and train workers. In addition, the Department of Defense plans to relocate the Army Cyber Command to Fort Gordon, Georgia, a move that will bring \$2 billion of investment in the coming decade.⁸³

The state could accelerate the growth of its cybersecurity cluster by pursuing several strategies in parallel:

- Make it easier for companies to compete for and work on government contracts by exploring the establishment of other sensitive compartmented information facilities (SCIFs) where sensitive government information can be viewed. Once such facility already exists in Augusta; adding another in Atlanta would boost the cybersecurity industry in Georgia by easing access to a SCIF.
- Host a major cybersecurity conference highlighting Georgia as a cybersecurity hub.
- Nurture growth in existing companies and attract new companies with R&D and investment incentives.
- Explore better physical and information connections between Atlanta and Augusta.

Fintech

Fintech companies harness digital technologies to support, streamline, and automate parts of the financial services industry. They have positioned themselves as both challengers and partners to large incumbent institutions. As advanced analytics and digital technologies have become essential for financial institutions, fintech companies have attracted attention and investment.

Experts expect sustained growth in the fintech industry as large financial institutions merge with fintech start-ups. While the US economy is forecasted to increase at a compound annual growth rate (CAGR) of 2 percent from 2017 to 2023,⁸⁴ the US fintech industry is projected to achieve a CAGR of 19 percent.⁸⁵ The state's fintech start-ups are growing quickly, including one that recently raised \$182 million in its first round of funding.

Georgia has all of the necessary elements in place to become a fintech hub. For example, the state's existing financial infrastructure includes established financial services companies such as Equifax, Intercontinental Exchange, and Invesco. Georgia also has the infrastructure to support fintech companies' connectivity-heavy activities; the state has two of the nation's largest fiber-optic trunk lines and two major research lines, giving every major overseas and North American fiber provider a core interconnection point in Atlanta. In addition, universities such as the University of Georgia and Georgia Tech are well placed to train new members of the fintech workforce.

The state could accelerate growth in the fintech industry by taking several actions:

- Launch a fintech-specific tax incentive for investment and R&D.
- Bolster fintech community mentorship programs, especially for growth-stage companies.
- Provide training for low- and midskill workers to meet the industry's talent needs.
- Build relevant programming into high school curricula to promote interest and basic capabilities in the emerging labor market.

States that have nurtured economic clusters have reaped significant benefits in both direct investment and employment as well as indirect contributions to the economy. Georgia has the elements necessary to promote the growth of cybersecurity and fintech clusters, but capturing the full value of these clusters would likely require targeted investment and coordinated action among state and local leaders.



What Georgia has to gain

Today, Georgia's workforce is underutilized, most areas outside of Atlanta are not benefiting from the state's success, and growth-stage companies are struggling to survive and grow. But Georgia has a wealth of resources that it has not fully tapped to spur growth. To achieve the state's economic goals and extend its prosperity, Georgia's public- and private-sector leaders can work together to create an economy that is inclusive of all workers, regions, and firms within the state.

The necessary elements are interconnected and mutually reinforcing. New jobs at growth-stage firms in economically underperforming regions need to be filled by qualified workers. Without an engaged, healthy workforce that has the skills required for in-demand jobs, Georgia's growth will likely stagnate. At the same time, the impact of a strengthened workforce will be muted without a corresponding array of jobs and thriving firms to support.

Because stakeholders' actions are interconnected, it's difficult to assign numbers for potential growth to any single lever. Our analysis shows that Georgia could create up to \$68 billion in incremental GDP growth over the next ten years, or 0.9 percent in incremental annual growth, by meeting the following milestones:

1. Expand the supply of productive capacity by bringing 400,000 additional workers into the workforce, and increase their hours worked by 1 percent a week.
2. Boost demand for this productive capacity by:
 - a. Expanding connective infrastructure and creating at least \$13 billion in incremental growth in struggling ex-Atlanta metros
 - b. Helping an additional 15,000 firms to survive their first five years, and an additional 1,000 firms to grow to more than 50 employees

If Georgia's leaders can acknowledge the magnitude of these challenges and work together to find effective solutions, they can achieve more sustainable and equitable growth. Indeed, while the past 40 years have been a story of (somewhat uneven) economic triumph, Georgia now has an opportunity to demonstrate the power of a new economic formula to foster continued growth.

Endnotes

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