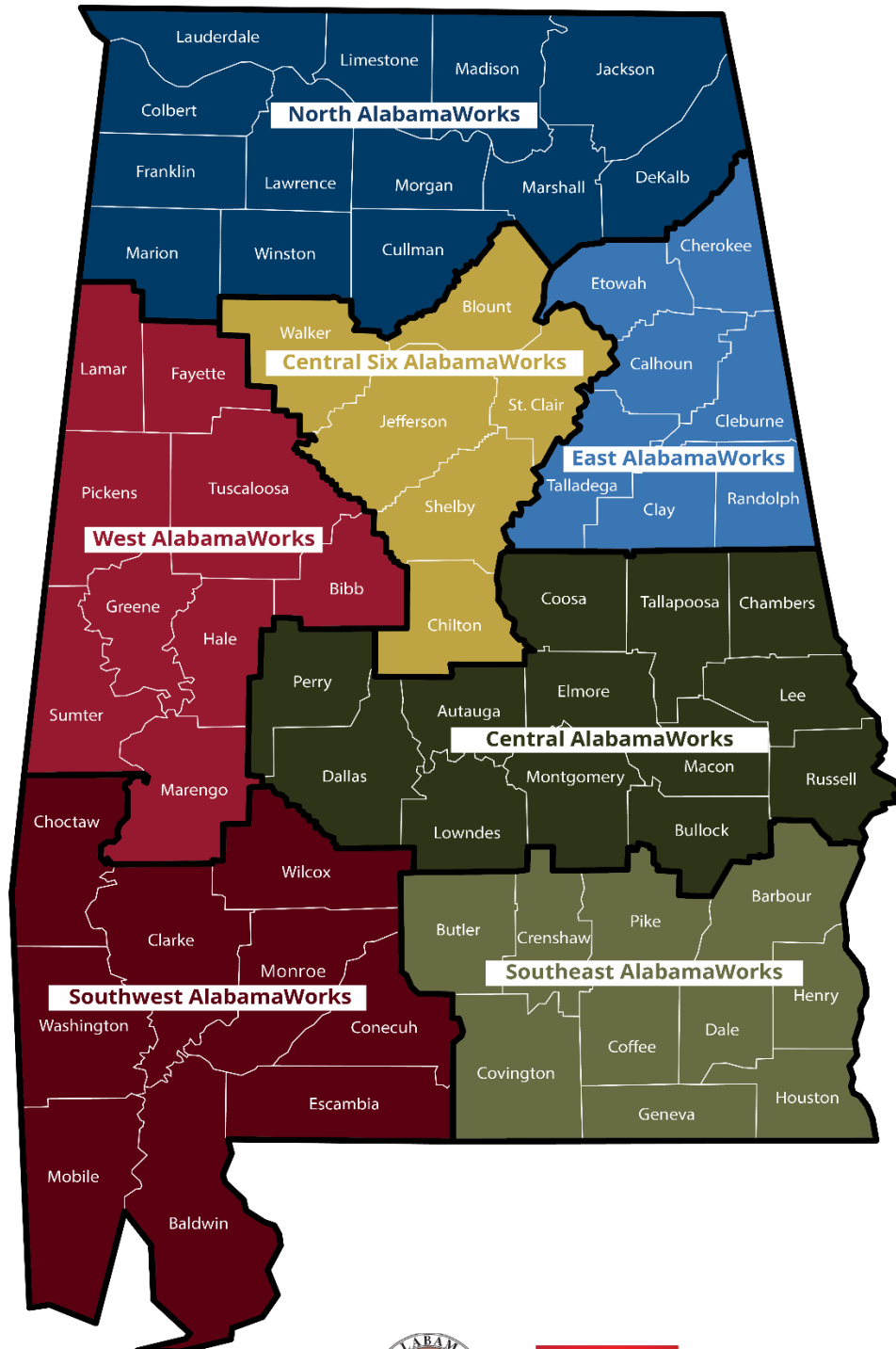


# State of the Workforce Report XVII: Alabama





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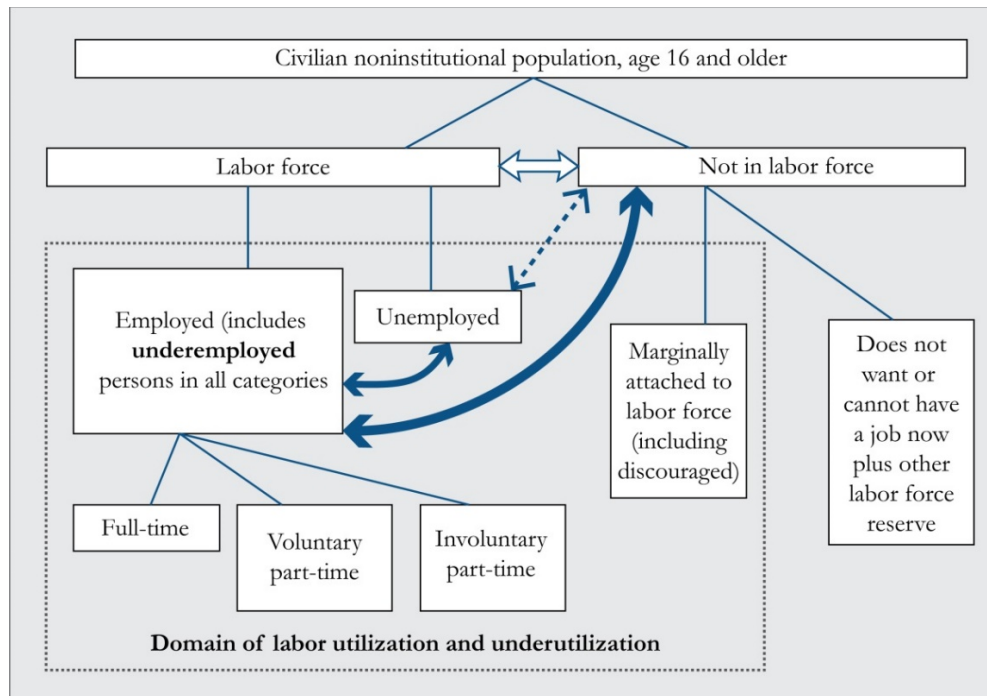
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## Summary

- This report analyzes Alabama workforce supply and demand issues using available metrics of workforce characteristics and presents implications and recommendations.
- Alabama had an unemployment rate of 1.9 percent in March 2023, with 44,380 unemployed. An underemployment rate of 22.2 percent for 2022 means that the state has an available labor pool of 543,181 workers. This includes 498,801 underemployed workers who are looking for better jobs and are willing to commute farther and longer for such jobs.
- Both out-commuting and in-commuting declined in 2020 due to the effects of COVID-19 pandemic and recession. As the pandemic eased and the economy recovered, commuting also picked up. Both commute times and distances went up in 2022 from 2021 implying that congestion worsened statewide. Congestion is likely to remain a challenge in major metro areas as the state economy and the state population grows. Continuous maintenance and development of transportation infrastructure and systems is therefore essential.
- By sector, the top five employers in the state are health care and social assistance, manufacturing, retail trade, accommodation and food services, and educational services. These five industries provided 1,110,759 jobs or 57.3 percent of the state total in the first quarter of 2022. Among these five sectors, only manufacturing had an average wage that is above the state's average monthly wage of \$4,756 at \$5,521. Economic development should aim to diversify and strengthen the state's economy by retaining, expanding, and attracting more high-wage providing sectors. Workforce development should also focus on preparing workers for these industries.
- On average, 77,568 jobs were created per quarter from the second quarter of 2001 to the first quarter of 2022 and quarterly net job flows averaged 1,731. Job creation is the number of new jobs that are created either by new businesses or through expansion of existing firms. Net job flows reflect the difference between current and previous employment at all businesses.
- The top five high-demand occupations are Customer Service Representatives; Heavy and Tractor-Trailer Truck Drivers; Registered Nurses; General and Operations Managers; and Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products.
- The top five fast-growing occupations are Nurse Practitioners; Epidemiologists; Cooks, Restaurant; Physical Therapist Assistants; Physician Assistants.
- The top 50 high-earning occupations are in health, management, postsecondary education, science, and engineering fields and have a minimum average salary of \$108,710. All the top 10 high-earning jobs are in health.
- Of the top 40 high-demand, top 20 fast-growing, and top 50 high-earning occupations, eight—Financial Managers, Lawyers, Sales Managers, Industrial Production Managers, Pharmacists, Architectural and Engineering Managers, Marketing Managers, and General and Operations Managers—are both high-demand and high-earning occupations. Six occupations are both high-demand and fast-growing. No occupation is in all top categories.

- Of the state's 775 occupations, 147 are expected to decline over the 10-year period from 2020-2030 period. Twenty occupations are expected to sharply decline in that period, dropping by a minimum of 80 jobs or at least 3.0 percent. Education and training for these 20 occupations should slow accordingly.
- Educational and skill requirements for jobs keep rising. This is especially true for high-demand, fast-growing, and high-earning occupations, which demonstrates the importance of education in developing tomorrow's workforce. In the future, more jobs will require postsecondary education and training.
- The importance of basic skills for high-demand, high-growth, and high-earning jobs also indicates a strong need for training in these skills. The pace of training needs to increase for technical, basic (science), and resource management (financial and materials) skills, while the scale of training must be raised for basic and social skills. Ideally, all high school graduates should possess basic skills so that postsecondary and higher education can focus on other and more complex skills. Employers should be an integral part of planning for training as they can help identify future skill needs and any existing gaps.
- Worker shortfalls are projected to be 111,500 and 139,600 for 2030 and 2035, respectively, rise to 181,400 in 2040 and reach 231,600 by 2045. The state should continuously prioritize skill gaps and worker shortfalls, especially for critical occupations, with strategies that include: (1) improvements in education and its funding; (2) use of economic opportunities to attract new residents; (3) focusing on hard-to-serve populations (e.g. out-of-school youth); (4) lowering the high school dropout rate; (5) continuation and enhancement of programs to assess, retrain, and place dislocated workers; (6) encouragement of older worker participation in the labor force; and (7) facilitation of in-commuting.
- Improving education is important because (i) a highly educated and productive workforce is a critical economic development asset, (ii) productivity rises with education, (iii) educated people are more likely to work, and (iv) it yields high private and social rates of return on investment. Workforce development must view all of education and related programs (e.g. adult education, career technical training, worker retraining, career readiness, etc.) as one system. Funding to support workforce development may require tax reform at state and local levels and should provide flexibility as workforce needs change over time and demand different priorities. Publicizing both private and public returns to education can encourage individuals to raise their own educational attainment levels, while also promoting public and legislative support for education.
- Higher incomes that come with improved educational attainment and work skills will help to increase personal income for the state, as well as raise additional tax revenues for the state and local (county and city) tax jurisdictions. This is especially important for a state that has low population and labor force growth rates as well as low per capita income.
- Together, workforce development and economic development can build a strong, well-diversified Alabama economy. Indeed, we cannot achieve success in one without the other.

## Labor Utilization and Supply Flows



Source: Addy et al<sup>1</sup> and Canon et al<sup>2</sup>

The chart above presents labor utilization and supply flows that explain labor market dynamics. The civilian noninstitutional population, age 16 and above, includes participants in the labor force and nonparticipants. The labor force is made up of employed and unemployed persons; the unemployed do not have a job but are actively searching for work. Employed persons include fully employed and underemployed persons in all categories of work (full-time, voluntary part-time, and involuntary part-time). Nonparticipants in the labor force include retirees (voluntary and involuntary), people who do not want to or cannot work for various reasons (e.g., disability, caring for family members, in school or training, etc.), discouraged workers, and other labor force reserves. It has been suggested that a subgroup of nonparticipants referred to as the “waiting group” is more likely than the rest of the nonparticipants to take a job if wages and conditions are satisfactory, but people in this group do not actively search for work. Between January 2003 and August 2013, the flow of nonparticipants into employment was 1.6 times that of unemployed persons transitioning into employment, which may be due to the presence of the waiting group.<sup>1,2</sup> Nonparticipant flows to employment are generally larger in services, management, and professional occupations while unemployed flows to employment are higher in physically intensive occupations such as construction workers and miners. Industry effects vary by the type and number of occupations they contain. This finding enhances the common understanding of labor market dynamics and influences workforce availability and skills gap analyses. Skill and spatial mismatches present additional complications to labor market dynamics. For example, unemployment can coexist with significant job availability.

<sup>1</sup> Addy, S.N., Bonnal, M., and Lira, C. (2012). Towards a More Comprehensive Measure of Labor Underutilization: The Alabama Case, *Business Economics*, vol. 47(3).

<sup>2</sup> Canon, M.E., Kudlyak, M., and Reed, M. (2014). Not Everyone Who Joins the Ranks of the Employed was “Unemployed”, *The Regional Economist*, January.



## Workforce Supply

### Labor Force Activity

The labor force includes all persons in the civilian noninstitutional population who are age 16 and over and either have a job or are actively looking for one. Typically, those who have no job and are not looking for one are not included (e.g. students, retirees, and disabled and discouraged workers). Table A.1 shows labor force information for Alabama and each of the state's seven AlabamaWorks regions for 2022 and in March 2023. Alabama labor force information is available from the Labor Market Information (LMI) Division of the Alabama Department of Labor. LMI compiles data in cooperation with the U.S. Bureau of Labor Statistics.

**Table A.1 AlabamaWorks Labor Force Information**

2022 Annual Average				
Region	Labor Force	Employed	Unemployed	Rate (%)
North	567,660	554,930	12,730	2.2
East	155,435	150,925	4,510	2.9
West	153,063	148,869	4,194	2.7
Central Six	558,482	545,246	13,236	2.4
Central	346,082	338,815	7,267	2.1
Southeast	163,258	158,820	4,438	2.7
Southwest	342,019	331,486	10,533	3.1
Alabama	2,286,028	2,226,670	59,358	2.6
United States	164,287,000	158,291,000	5,996,000	3.6

March 2023				
Region	Labor Force	Employed	Unemployed	Rate (%)
North	572,418	562,706	9,712	1.7
East	155,166	151,926	3,240	2.1
West	154,512	151,409	3,103	2.0
Central Six	557,782	547,973	9,809	1.8
Central	345,706	336,033	9,673	2.8
Southeast	162,448	159,126	3,322	2.0
Southwest	342,824	334,898	7,926	2.3
Alabama	2,291,233	2,246,853	44,380	1.9
United States	166,783,000	160,741,000	6,043,000	3.6

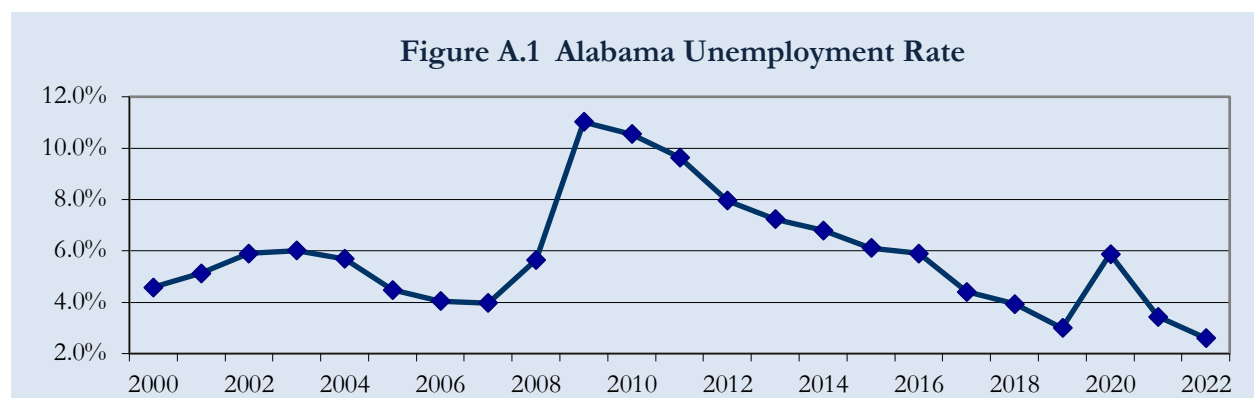
Note: Not seasonally adjusted.

Source: Alabama Department of Labor and U.S. Bureau of Labor Statistics.

Unemployment rates for the state and all AlabamaWorks regions rose in 2020 due to the COVID-19 pandemic and the associated recession, but started declining as personal protection equipment and testing became more available and Congress intervened through the CARES Act. A robust economic recovery continued in 2021 aided by the availability of COVID-19 vaccines and more economic relief through the Consolidated Appropriations Act and the American Rescue Plan Act. Congress provided more fiscal assistance through the Infrastructure Investment and Jobs Act towards the end of 2021 to rebuild infrastructure and help solve supply chain disruptions and the Inflation Reduction Act of 2022 to ease inflationary pressures on the economy. Despite the high inflation and supply disruptions, annual regional unemployment rates in 2022 declined significantly ranging between 2.1 percent (Central AlabamaWorks) and 3.1 percent (Southwest AlabamaWorks),

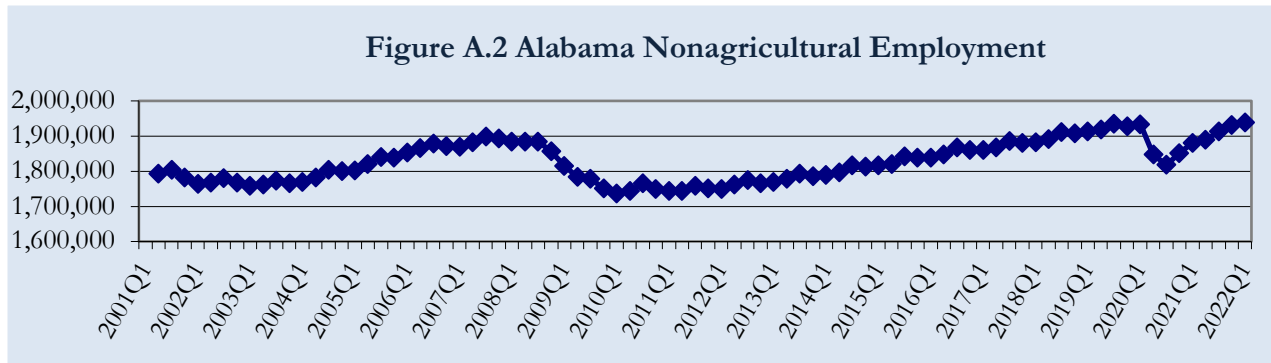
with a 2.6 percent annual average for Alabama. Alabama’s unemployment rate was below the national rate of 3.6 percent with unemployment rates remaining below the national rate in all the regions. Three regions—North, Central Six, and Central AlabamaWorks—had lower unemployment rates than the state. As of March 2023, the unemployment rates were the lowest in history ranging from 1.7 percent (North AlabamaWorks) to 2.8 percent (Central AlabamaWorks) for the regions, with 1.9 percent for Alabama, which was lower than 3.6 percent for the nation. North AlabamaWorks had the largest labor force followed by the Central Six region; together, the two regions account for above half of Alabama’s workforce. West AlabamaWorks had the smallest labor force followed by East and Southeast AlabamaWorks.

Figure A.1 shows that statewide unemployment declined to 3.0 percent in 2019 after peaking in double digits in 2009 due to the 2008 recession. The COVID-19 pandemic and recession led to massive job losses in 2020, raising Alabama’s unemployment rate to 5.9 percent, but declined to 3.4 percent in 2021 due to a combination of pandemic mitigation measures and interventions by Congress. Despite a persistent COVID-19 pandemic, supply chain interruptions, and high inflation, unemployment rates continued to fall dropping to a record low of 2.6 percent in 2022. The historically low unemployment levels is due to several factors which include workforce shortages as more older workers retire, sustained pent up demand from consumer savings during pandemic lockdowns and bailouts, the unique nature of lingering supply chain disruptions, and pandemic related shifts in demand to goods then back to services. The low unemployment rates continue in 2023 as labor shortages persist and consumer spending remains relatively high. The statewide unemployment dropped to 1.7 percent in April 2023, but had risen to 2.3 percent by July 2023.



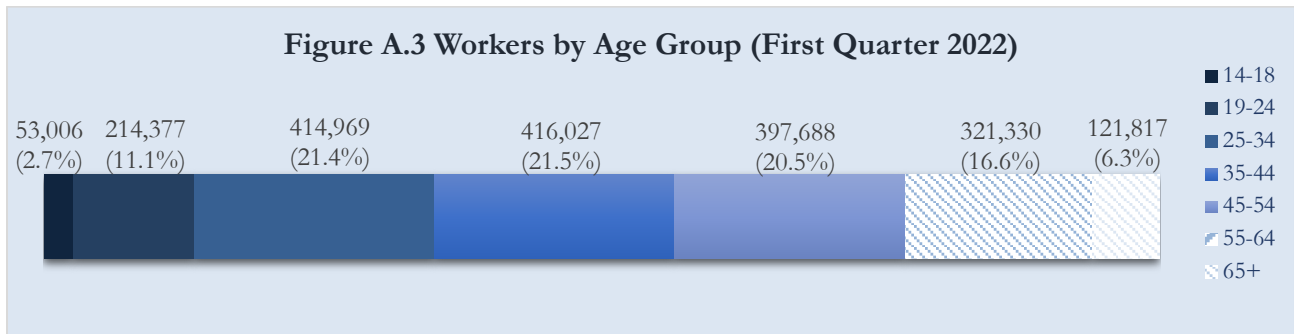
Source: Alabama Department of Labor.

Total nonagricultural employment in Alabama averaged over 1.8 million from the second quarter of 2001 to the first quarter of 2022 (Figure A.2). The total number of jobs in the state declined from a high of about 1.9 million in the third quarter 2007 to a low of just over 1.7 million in the first quarter of 2010 due to the 2008 financial recession. Employment recovered gradually and surpassed pre-recession levels in the third quarter of 2018 when it reached 1,911,709 as the nation and state experienced one of the longest economic expansion in decades. By the first quarter of 2020, total nonagricultural employment was 1,933,331 but subsequently dropped to 1,817,751 jobs in the third quarter of 2020 due to the COVID-19 recession. Recovery from the COVID recession has been faster than previous recession recoveries and by the first quarter of 2022, the total nonagricultural jobs had recovered and risen to 1,939,214 jobs, the highest on record. In 2022, the state’s labor force participation rate was 57.0 percent, which is lower than the nation’s 62.2 percent.



Source: Alabama Department of Labor and U.S. Census Bureau.

Figure A.3 shows worker distribution by age in Alabama for first quarter 2022. Of the 1,939,214 total workers, older workers (age 55 and over) constitute 22.9 percent (443,147 employees), which is a significant and growing part of total nonagricultural employment in the state. The share of older workers across the workforce investment areas ranged from 21.9 percent in West AlabamaWorks to 24.1 percent for Southeast AlabamaWorks. Central, Southeast, and Southwest AlabamaWorks regions had bigger shares of older workers than the state. To meet long term occupational projections for growth and replacement, the labor force participation of younger residents must increase. Otherwise, older workers may have to work longer, or in-state migration and in-commuting may need to grow.



Source: U.S. Census Bureau, Local Employment Dynamics Program.

Note: Rounding errors may be present. Nonagricultural employment is by place of work, not residence.

## Commuting Patterns

In 2005, more Alabama residents commuted out of the state to work than nonresidents who commuted into the state for work (Table A.2). Commuter outflow was 63,630 workers, while inflow was at 43,434 workers. By 2019, the level of out-commuting had increased by 53.4 percent to 97,627 and in-commuting rose by 76.9 percent to 76,847. However, due to the COVID-19 pandemic and recession out-commuting declined to 95,219 workers, while in-commuting dropped to 72,900. Net out-commuting was 22,319 compared to 42,183 in 2018. Most of the commuting in-flows and out-flows were to and from Alabama’s four neighboring states. About 95 percent of Alabama working residents work in the state, with 95,219 out-commuting to other states. The top destinations for out-commuting Alabama residents in 2020 were Georgia (48,660), Florida (17,066), and Tennessee (13,898). About 96 percent of the state’s workers live in Alabama, with 72,900 workers in-commuting from other states. Most of the in-commuting workers came from Georgia (20,344),

Florida (13,974), Tennessee (13,752), and Mississippi (13,521). By metro, most in-commuting and out-commuting occurred in Central Six AlabamaWorks, followed by North, Southwest, and Central.

Table A.2 also shows the one-way average commute time and distance for Alabama workers in the past six years. Slightly more workers reported longer commute times and distances in 2022 compared to 2021, implying that congestion worsened across the state as more businesses reopened, and more workers resumed commuting to work, as opposed to working from home. As the economy and the population continue to grow, congestion is likely to pose challenges especially in troublesome and high-traffic areas such as the bigger metro areas. Congestion can delay or slow economic development by impeding the flow of goods and the mobility of workers. Thus, maintenance and development of transportation infrastructure and systems must continue.

**Table A.2 Commuting Patterns in Alabama**

Year	State Inflow	State Outflow
2005	43,434	63,630
2006	49,079	60,095
2007	50,492	83,382
2008	58,431	81,088
2009	52,116	85,328
2010	58,414	90,544
2011	61,252	95,117
2012	63,264	100,224
2013	65,616	105,071
2014	67,904	108,166
2015	66,702	105,844
2016	67,130	106,938
2017	71,799	113,711
2018	73,818	116,001
2019	76,847	97,627
2020	72,900	95,219

Percent of Workers							
Average commute time (one-way)	2016	2017	2018	2019	2020	2021	2022
Less than 20 minutes	50.1	48.7	48.7	47.7	46.4	45.2	43.2
20 to 40 minutes	27.2	28.3	28.0	28.8	27.9	27.1	27.3
40 minutes to an hour	10.3	10.5	10.2	10.1	10.5	11.1	11.3
More than an hour	3.7	4.4	3.3	4.0	3.9	3.8	3.6
Average commute distance (one-way)	2016	2017	2018	2019	2020	2021	2022
Less than 10 miles	41.9	40.8	40.3	40.3	39.8	38.9	37.4
10 to 25 miles	33.2	32.6	34.2	33.5	33.3	32.9	33.5
25 to 45 miles	15.2	15.7	15.3	14.7	15.0	15.7	16.5
More than 45 miles	7.0	8.6	7.1	8.7	9.0	9.6	9.3

Note: Rounding errors may be present.

Source: U.S. Census Bureau; Alabama Department of Labor; and Center for Business and Economic Research, The University of Alabama.

## Population

The Alabama population count of over 5.0 million for 2020 was 5.1 percent more than in 2010 (Table A.3). The state's population growth was lower than the nation's growth of 7.4 percent.

Population growth is higher than the state’s average in North, West, and Central AlabamaWorks regions. North AlabamaWorks had the highest population growth at 8.2 percent, followed by West (7.4 percent) and Central (5.5 percent). East AlabamaWorks’ population declined by 1.3 percent. The 2022 population estimates show a 1.0 percent population increase for Alabama since the 2020 Census, with much of the growth occurring in the North AlabamaWorks (2.7 percent), West (2.0 percent) and Southwest (1.1 percent). East AlabamaWorks is shown to have lost 0.4 percent of its population. The statewide population growth was above the nation’s growth of 0.6 percent.

**Table A.3 Population by Workforce Development Region**

Region	2000	2010	2020	2022	Change, 2010-2020		Change, 2020-2022	
	Census	Census	Census	Estimate	Number	Percent	Number	Percent
North	996,565	1,103,284	1,193,667	1,225,621	90,383	8.2	31,954	2.7
East	370,774	383,099	378,256	376,905	-4,843	-1.3	-1,351	-0.4
West	305,545	328,717	352,928	359,920	24,211	7.4	6,992	2.0
Central Six	1,031,412	1,105,132	1,158,338	1,159,191	53,206	4.8	853	0.1
Central	695,681	741,877	782,803	783,539	40,926	5.5	736	0.1
Southeast	354,943	378,812	381,845	383,863	3,033	0.8	2,018	0.5
Southwest	692,180	738,815	776,442	785,257	37,627	5.1	8,815	1.1
Alabama	4,447,100	4,779,736	5,024,279	5,074,296	244,543	5.1	50,017	1.0
United States	281,421,906	308,745,538	331,449,281	333,287,557	22,703,743	7.4	1,838,276	0.6

Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau.

**Table A.4 Alabama Population by Age Group and 2030-2045 Projections**

Age Group	2000	2010	2020	2030	2035	2040	2045
0-19	1,256,169	1,276,312	1,236,022	1,325,010	1,339,206	1,361,047	1,380,065
20-24	306,865	335,322	330,438	346,453	355,086	359,110	362,286
25-29	301,196	311,034	339,503	326,947	334,631	342,509	349,774
30-34	301,819	297,888	325,990	356,970	365,512	374,149	382,086
35-39	340,300	308,430	309,358	332,786	342,466	350,791	358,451
40-44	345,212	311,071	298,731	333,934	355,256	365,590	375,331
45-49	315,173	346,369	308,036	308,579	299,483	318,632	338,210
50-54	285,036	347,485	312,032	346,608	374,048	362,645	350,769
55-59	225,450	311,906	339,810	350,935	345,868	373,092	401,535
60-64	190,082	276,127	331,878	356,757	361,298	355,780	349,577
65+	579,798	657,792	892,481	925,342	970,043	998,053	1,024,735
<b>20-64 Total</b>	<b>2,611,133</b>	<b>2,845,632</b>	<b>2,895,776</b>	<b>3,059,969</b>	<b>3,133,648</b>	<b>3,202,299</b>	<b>3,268,019</b>
<b>Total Population</b>	<b>4,447,100</b>	<b>4,779,736</b>	<b>5,024,279</b>	<b>5,310,321</b>	<b>5,442,896</b>	<b>5,561,399</b>	<b>5,672,819</b>
<i>Change from 2020</i>							
0-19				7.2%	8.3%	10.1%	11.7%
20-64				5.7%	8.2%	10.6%	12.9%
Total Population				5.7%	8.3%	10.7%	12.9%

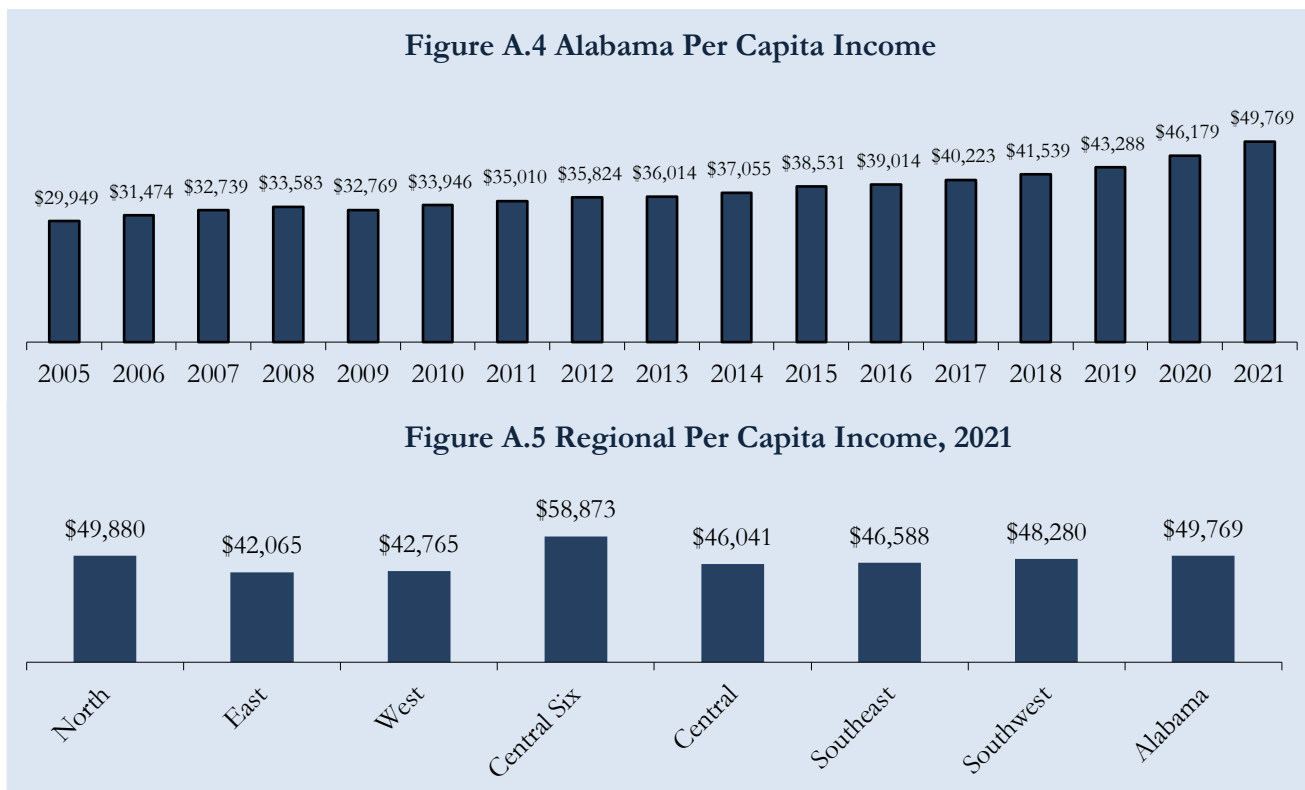
Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau.

Table A.4 shows Alabama’s population decennial counts, estimates, and projections by age group. The population aged 65 and over is growing rapidly as the baby boomer generation ages. From a 2020 base, main working age population growth is expected to reach 5.7 percent by 2030, 8.2

percent in 2035, and 10.6 percent in 2040. By 2045, the main working age growth will reach 12.9 percent, the same as the total population growth rate. However, if employment growth outpaces labor force growth as is expected for the long term, communities that experience rapid job gains may need to consider investments in amenities and infrastructure to attract new residents and workers.

### Per Capita Income

Per capita income (PCI) in Alabama was \$49,769 in 2021 (Figures A.4 and A.5), up 66.2 percent from 2005. Central Six AlabamaWorks had the highest PCI with \$58,873, followed by North with \$49,880 and Southwest with \$48,280. Central Six and North AlabamaWorks had higher PCI than the state average. At \$42,065, East AlabamaWorks had the lowest PCI followed by West with \$42,765.



Source: U.S. Bureau of Economic Analysis and Center for Business and Economic Research, The University of Alabama.

### Educational Attainment

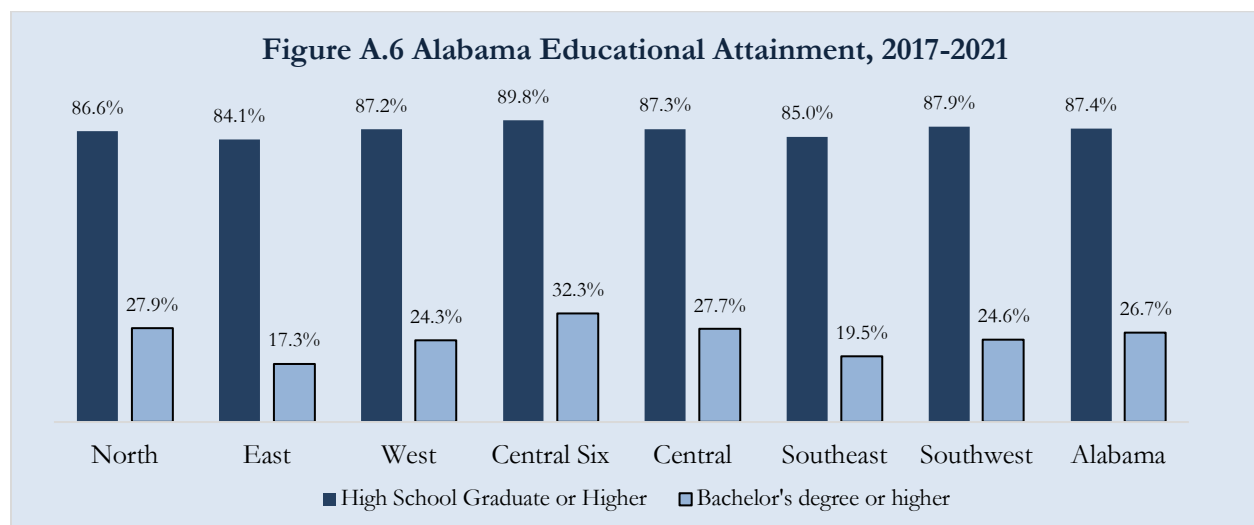
Educational attainment of Alabama residents who were 25 years old and over is shown in Table A.5 and Figure A.6 based on the American Community Survey’s 5-year estimates for 2017 through 2021. In that period, 87.4 percent of Alabama’s population had graduated from high school and 26.7 percent held a bachelor’s or higher degree. This educational attainment is lower than the national educational attainment of 88.9 percent for high school graduates and 33.7 percent for bachelors’ degree or higher. Central Six AlabamaWorks had the highest educational attainment, followed by

Southwest for high school graduate or higher and North for bachelor's degree or higher. East AlabamaWorks had the lowest educational attainment, followed by Southeast. Central Six and South West AlabamaWorks had higher educational attainment for high school graduates than the state's average. Central Six, Central, and North AlabamaWorks had higher educational attainment for bachelor's degree or higher than the state. Educational attainment is important as skills rise with education, and high-wage jobs in the 21st century demand more skill sets.

**Table A.5 Educational Attainment of Population 25 Years and Over, 2017-2021**

	Central							Alabama
	North	East	West	Six	Central	Southeast	Southwest	
Total	817,219	264,557	228,427	789,979	518,757	260,824	534,040	3,413,803
No schooling completed	11,659	3,343	3,130	8,734	7,201	4,119	5,627	43,813
Nursery to 4th grade	3,702	1,132	826	1,933	1,700	1,027	1,454	11,774
5th and 6th grade	6,974	1,816	1,026	4,912	2,843	1,850	2,199	21,620
7th and 8th grade	15,047	6,214	3,377	8,852	7,687	5,088	6,500	52,765
9th grade	17,022	5,923	3,600	10,517	8,452	5,797	9,803	61,114
10th grade	21,192	9,443	5,311	14,309	14,257	7,397	12,877	84,786
11th grade	20,520	8,483	7,002	16,774	12,876	8,182	15,151	88,988
12th grade, no diploma	13,250	5,582	4,927	14,205	10,782	5,579	10,862	65,187
High school graduate/equivalent	237,106	91,988	77,045	216,486	150,440	88,531	179,613	1,041,209
Some college, less than 1 year	52,524	18,547	13,351	51,608	29,339	17,183	31,582	214,134
Some college, 1+ years, no degree	119,309	42,226	33,468	118,233	81,856	39,652	79,945	514,689
Associate degree	71,103	24,053	19,792	68,392	47,392	25,448	47,119	303,299
Bachelor's degree	143,131	27,053	33,373	159,478	84,616	32,230	83,747	563,628
Master's degree	66,108	13,372	15,511	63,623	43,369	14,202	34,855	251,040
Professional school degree	9,518	3,268	2,369	20,225	8,164	2,886	7,646	54,076
Doctorate degree	9,054	2,114	4,319	11,698	7,783	1,653	5,060	41,681

Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau, American Community Survey.



Source: Center for Business and Economic Research, The University of Alabama and U.S. Census Bureau, American Community Survey.

## Underemployment and Available Labor

Labor force data are often limited to information on the employed and the unemployed that is available from government sources. However, this information is not complete from the perspective of employers. New or expanding employers are also interested in underemployment because current workers are potential employees. In fact, experience requirements in job ads are evidence that many prospective employers look beyond unemployed persons for workers.

Workers in occupations that underutilize their experience, training, and skills are underemployed. These workers might look for other work because their current wages are below what they believe they can earn or because they wish to not be underemployed. Underemployment occurs for various reasons including (i) productivity growth, (ii) spousal employment and income, and (iii) family constraints or personal preferences. Underemployment is unique in different areas because of the various contributing factors combined with each area's economic, social, and geographic characteristics.

The existence of underemployment identifies economic potential that is not being realized. It is extremely difficult to measure this economic potential because of uncertainties regarding additional income that the underemployed can bring to an area. It is clear, however, that underemployment provides opportunities for selective job creation and economic growth. A business that needs skills prevalent among the underemployed could locate in AlabamaWorks regions with such workers regardless of those areas' unemployment rates. A low unemployment rate, which may falsely suggest limited labor availability, is therefore not necessarily a hindrance to employers.

The underemployed present a significant pool of labor because they tend to pursue better job opportunities that offer (i) higher income, (ii) more benefits, (iii) superior terms and conditions of employment, and (iv) a better match with skills, training, and experience. The underemployed also create opportunities for entry level workers as they leave lower-paying jobs for better-paying ones. Even if their previously held positions are lost or not filled (perhaps due to low unemployment or adverse economic conditions), there is economic growth in gaining higher-paying jobs. Such income growth boosts consumption, savings, and tax collections. Quantifying the size of the underemployed workers is necessary for economic development, workforce training and planning purposes. It is important to note that underemployed persons can take on more responsibilities and earn more income, but they cannot be counted on to address possible future worker shortages as they are already employed.

The statewide underemployment rate was 22.2 percent in 2022. Applying this rate to March 2023 labor force data means that 498,801 employed Alabama residents were underemployed (Table A.6). Adding the unemployed persons to the underemployed workers gives a total available labor pool of 543,181 statewide. This is 12.2 times the number of unemployed and is a more realistic measure of the available labor pool in the state. Prospective employers must be able to offer the underemployed higher wages, better benefits or terms of employment, or some other incentives to induce them to change jobs. The underemployed are willing to commute farther and longer for a better job. For a one-way commute, 45.1 percent of the underemployed are prepared to add 20 or more minutes to their one-way commute and 36.4 percent are willing to add 20 or more extra miles for a better job. In contrast, only 40.5 percent of all workers are prepared to add more than 20 minutes and 31.0 percent are ready for an extra 20 miles or more.



**Table A.6 Underemployed and Available Labor by AlabamaWorks Region**

	Alabama	North	East	West	Central Six	Central	Southeast	Southwest
Labor force	2,291,233	572,418	155,166	154,512	557,782	345,706	162,448	342,824
Employed	2,246,853	562,706	151,926	151,409	547,973	336,033	159,126	334,898
Underemployment rate	22.2%	21.8%	22.1%	21.9%	18.4%	23.7%	23.1%	22.8%
Underemployed workers	498,801	122,839	33,576	33,098	100,772	79,606	36,710	76,357
Unemployed	44,380	9,712	3,240	3,103	9,809	9,673	3,322	7,926
<b>Available labor pool</b>	<b>543,181</b>	<b>132,551</b>	<b>36,816</b>	<b>36,201</b>	<b>110,581</b>	<b>89,279</b>	<b>40,032</b>	<b>84,283</b>

Note: Rounding errors may be present. Based on March 2023 labor force data and 2022 underemployment rates.

Source: Center for Business and Economic Research, The University of Alabama, and Alabama Department of Labor.

Underemployment rates for counties, AlabamaWorks regions, and the state were determined from an extensive survey of the state’s workforce. A total of 13,210 complete responses were obtained across the state. Over 58 percent (7,712 respondents) were employed, of whom 1,712 stated that they were underemployed. Among the workforce regions, underemployment ranged from 18.4 percent in Central Six AlabamaWorks region to 23.7 percent in Central. North AlabamaWorks had the most available labor, followed by Central Six. The two regions account for over 44 percent of the state’s available labor pool. West AlabamaWorks had the least available labor pool followed by East. Among counties, Dallas and Perry counties had the highest rate of underemployment at 33.3 percent, while St. Clair had the lowest with 14.3 percent. Thirty-five counties had higher underemployment rates than the state’s 22.2 percent.

From most important to the least, the main reasons for being underemployed are low wages at available jobs, a lack of job opportunities in their area, living too far from jobs, other family or personal obligations, other undisclosed reasons, childcare responsibilities, and owning a house in their area. Ongoing economic development efforts can help in this regard to get underemployed workers into jobs that fully utilize their skills. Non-workers have a very different set of reasons they cite as the main reasons for their status that include retirement, disability or other health concerns, social security limitations, and other undisclosed reasons. Such workers may become part of the labor force if these problems can be addressed. A 2014 study found that the flow of labor force nonparticipants to employment status was 60 percent more than that of unemployed workers who gain employment.<sup>3</sup> This implies that the state’s available labor pool could be larger than estimated in this report.

A comparison of underemployed workers to the overall state workforce shows that:

- Fewer work full-time, though more of those working part-time would prefer full-time work.
- More hold multiple jobs.
- They commute shorter distances and times.
- They are more likely to have jobs in healthcare support; food preparation and serving related; building and grounds cleaning and maintenance; sales and related; office and administrative support; and transportation and material moving occupations.
- By industry, more are in retail trade, transportation and warehousing, health care and social assistance, educational services, and accommodation and food services.
- They earn less and have shorter job tenure.

<sup>3</sup> Canon, M.E., Kudlyak, M., and Reed, M. (2014). Not Everyone Who Joins the Ranks of the Employed was “Unemployed”, *The Regional Economist*, January.

- More were laid off or furloughed in the past 3 months, but fewer returned to work where they were laid off.
- Fewer believe their jobs fit well with their education and training, skills, and experience.
- More believe they are qualified for a better job based on their education and training, skills, and work experience.
- More would leave their current jobs for higher income especially if the new job pays 5 to 30 percent more or 50 percent more.
- More are willing to commute more than 20 additional minutes and over 20 additional miles for a better job.
- Fewer are satisfied with their current jobs and more are willing to train for a better job even if they have to pay the full cost.
- More have sought better jobs in the preceding quarter; over 32 percent of underemployed versus 23.1 percent of all workers.
- Fewer have 4-year education or more and more have some college education with no degrees or junior college education.
- Fewer are married and more are female.
- More are African American or other nonwhite racial groups.
- They are less likely to be Hispanic.<sup>4</sup>

Table A.7 shows the detailed survey results on job satisfaction and willingness to train. Responses measuring overall job satisfaction, as well as various aspects of the job were obtained. Within the overall state workforce, most workers (77.4 percent) are satisfied or completely satisfied with their jobs. Workers are most satisfied with the work that they do and least satisfied with the earnings they receive. Fewer underemployed workers are satisfied with their jobs (60.2 percent). The underemployed are also more dissatisfied with their earnings and most satisfied with the work they do.

Workers are generally willing to train for a new or better job, with the underemployed being much more willing (69.5 percent vs. 58.7 percent). However, their willingness to train is strongly influenced by who pays for the cost of training. Workers typically do not wish to pay for the training and so their willingness is highest when the cost is fully borne by the government and lowest when the trainee must pay the full costs. This suggests that workers expect the government to bear at least part of the training cost. This expectation may result from worker awareness of government workforce programs that provide such assistance. Underemployed workers are more willing to train for a new or better job irrespective of who bears the cost burden.

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<sup>4</sup> Hispanic can be of any race.

**Table A.7 Job Satisfaction and Willingness to Train (Percent)**

<b>Job Satisfaction</b>						
		Completely Dissatisfied	Dissatisfied	Neutral	Satisfied	Completely Satisfied
<b>Employed</b>						
Overall		2.6	4.5	15.1	27.3	50.1
	Earnings	6.8	8.8	20.7	27.6	35.9
	Retention	2.6	3.1	8.4	17.8	67.1
	Work	1.1	2.2	9.0	24.6	63.0
	Hours	3.2	4.2	11.3	22.1	58.9
	Shift	2.8	3.1	9.0	18.5	66.3
	Conditions	2.9	4.5	12.2	24.7	55.3
	Commuting Distance	4.2	5.0	11.9	15.8	62.8
<b>Underemployed</b>						
Overall		5.6	9.4	24.6	26.5	33.7
	Earnings	16.1	16.9	26.4	22.8	17.6
	Retention	6.0	6.7	20.3	20.3	52.3
	Work	2.4	4.6	13.9	27.5	51.4
	Hours	6.1	6.7	15.7	22.9	48.3
	Shift	5.1	4.8	12.1	20.4	57.2
	Conditions	5.8	7.8	17.9	26.2	41.8
	Commuting Distance	7.0	6.1	13.1	15.9	57.7
<b>Willingness to Train</b>						
		Completely Unwilling	Unwilling	Neutral	Willing	Completely Willing
<b>Employed</b>						
For a new or better job		17.8	5.5	16.3	13.3	45.5
	If paid by trainee	43.7	21.4	19.6	5.1	7.0
	If paid by trainee and government	14.4	13.5	34.2	19.3	15.6
	If paid by government	4.8	3.0	10.9	17.4	62.4
<b>Underemployed</b>						
For a new or better job		12.2	3.2	13.8	13.3	56.2
	If paid by trainee	41.9	21.8	19.9	5.2	7.5
	If paid by trainee and government	10.6	12.9	31.7	20.8	19.8
	If paid by government	2.1	1.6	8.0	13.5	73.3

Note: Rounding errors may be present.

Source: Center for Business and Economic Research, The University of Alabama.

## Workforce Demand

### Industry Mix

The health care and social assistance sector was the leading employer in Alabama with 270,383 jobs in the first quarter of 2022 (Table A.8). Rounding out the top five industries by employment are manufacturing, retail trade, accommodation and food services, and educational services. These five industries provided 1,110,759 jobs, or 57.3 percent of the state total employment. The average monthly wage across all industries in the state was \$4,756, while new hire monthly earnings averaged \$2,855 or 60.0 percent of the average monthly wage. The highest average monthly wages were for utilities at \$11,564; finance and insurance at \$9,037; management of companies and enterprises at \$8,532; mining at \$8,447; professional, scientific, and technical services at \$7,204; and wholesale trade with \$7,037. Accommodation and food services paid the least at \$1,921. Mining had the highest average monthly new hire wage at \$5,814, followed by utilities at \$5,632; professional, scientific, and technical services at \$5,238; and information with \$5,221. Accommodation and food services paid newly hired workers the least at \$1,359.

**Table A.8 Industry Mix (First Quarter 2022)**

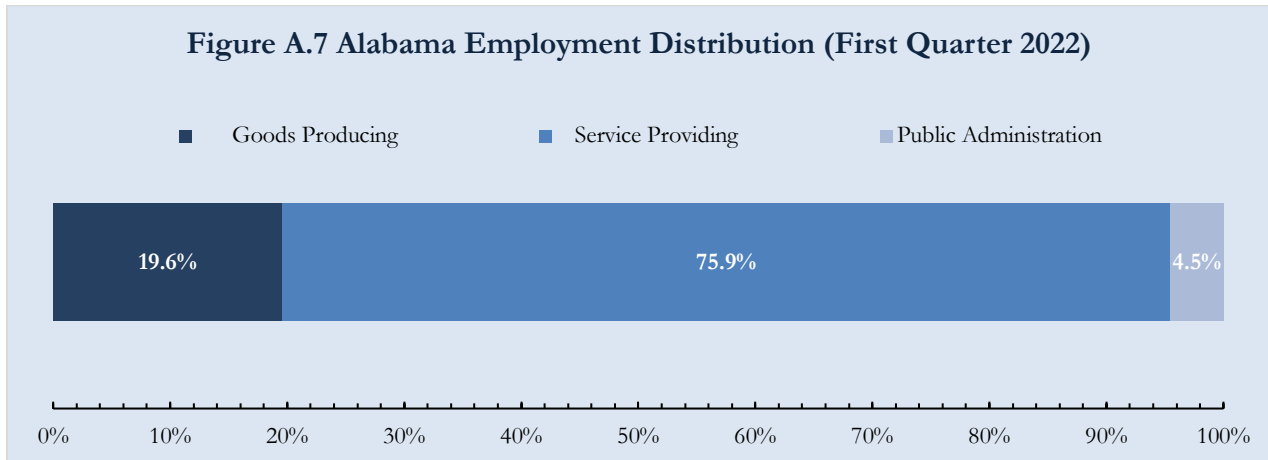
Industry by 2-digit NAICS Code	Total Employment	Share	Rank	Average Monthly Wage	Average Monthly New Hire Earnings
11 Agriculture, Forestry, Fishing and Hunting	11,862	0.6%	19	\$4,015	\$3,033
21 Mining	5,451	0.3%	20	\$8,447	\$5,814
22 Utilities	20,723	1.1%	17	\$11,564	\$5,632
23 Construction	95,543	4.9%	8	\$5,059	\$3,779
31-33 Manufacturing	266,831	13.8%	2	\$5,521	\$3,810
42 Wholesale Trade	75,251	3.9%	11	\$7,037	\$4,278
44-45 Retail Trade	244,653	12.6%	3	\$3,112	\$1,783
48-49 Transportation and Warehousing	84,389	4.4%	10	\$4,429	\$2,950
51 Information	22,460	1.2%	15	\$6,390	\$5,221
52 Finance and Insurance	74,416	3.8%	12	\$9,037	\$4,630
53 Real Estate and Rental and Leasing	25,783	1.3%	14	\$4,716	\$3,316
54 Professional, Scientific, and Technical Services	114,884	5.9%	7	\$7,204	\$5,238
55 Management of Companies and Enterprises	17,832	0.9%	18	\$8,532	\$3,614
56 Administrative and Support and Waste Management and Remediation Services	123,309	6.4%	6	\$3,323	\$2,767
61 Educational Services	160,129	8.3%	5	\$4,077	\$1,932
62 Health Care and Social Assistance	270,383	13.9%	1	\$4,606	\$3,030
71 Arts, Entertainment, and Recreation	22,456	1.2%	16	\$2,333	\$1,381
72 Accommodation and Food Services	168,763	8.7%	4	\$1,921	\$1,359
81 Other Services (Except Public Administration)	46,112	2.4%	13	\$3,766	\$2,628
92 Public Administration	87,981	4.5%	9	\$3,812	\$2,648
<b>ALL INDUSTRIES</b>	<b>1,939,214</b>	<b>100.0%</b>		<b>\$4,756</b>	<b>\$2,855</b>

Note: Rounding errors may be present.

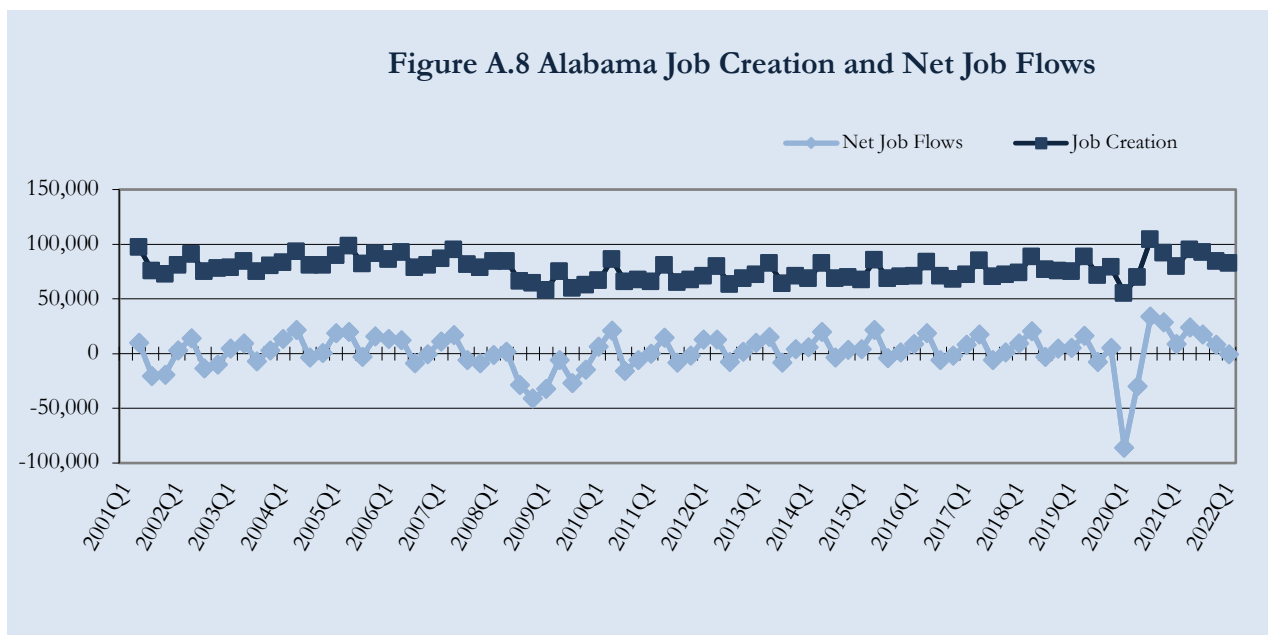
Source: Alabama Department of Labor and U.S. Census Bureau.

The leading employers are not the highest paying sectors. Of the top five largest employers, only manufacturing paid wages above the state average as the highest wages were in smaller employers. By broad industry classification, service providing industries generated 75.9 percent of total state

jobs in the first quarter of 2022 (Figure A.7). Goods producing industries were next with 19.6 percent, and public administration accounted for 4.5 percent. This distribution is for all nonagricultural jobs across the state and there is significant variation by AlabamaWorks regions.



Source: Alabama Department of Labor and U.S. Census Bureau.



Source: Alabama Department of Labor and U.S. Census Bureau

### Job Creation and Net Job Flows

The state’s job creation and net job flows are presented in Figure A.8. Quarterly job creation averaged 77,568 from the second quarter of 2001 to the first quarter of 2022. Both job creation and net job flows fluctuated significantly throughout the years with highs in second quarters and lows in third quarters. However, both job creation and net job flows declined to record lows in the first quarter of 2020 due to the COVID-19 recession. In the first quarter 2020, job creation declined to 55,396, while net job flows declined to negative 86,074. As pandemic restrictions eased, both job flows and job creation rose to record high numbers in the third quarter of 2020. Net job flows and job creation have been declining since the second quarter of 2021. Quarterly net job flows averaged

1,731 jobs and ranged from a loss of 86,074 in the first quarter of 2020 to a gain of 33,808 in the third quarter of 2020. Job creation refers to the number of new jobs that are created either by new businesses or through the expansion of existing firms. Net job flows reflect the difference between current and previous employment at all businesses.

### **High-Demand, Fast-Growing, High-Earning, and Sharp-Declining Occupations**

There are 775 occupations in Alabama. Table A.9 shows the top 40 occupations that are expected to be in high-demand over the 2020 to 2030 period, ranked by projected average annual job openings over the 10 year projection period. Many of these occupations occur in health care and manufacturing, which are among the five largest employment sectors identified earlier (Table A.8). Thus, these sectors will continue to dominate employment in Alabama.

The top five high-demand occupations are Customer Service Representatives; Heavy and Tractor-Trailer Truck Drivers; Registered Nurses; General and Operations Managers; and Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products. Six of the high-demand occupations are also fast-growing. These six occupations have a minimum annual growth rate of 2.12 percent, which is thrice the statewide occupational growth rate of 0.62 percent. Eight of the high-demand occupations are also high-earning occupations.

The 20 fastest growing occupations ranked by projected growth of employment are listed in Table A.10. Many of the top fast-growing occupations are health-related. The top five fast-growing occupations are Nurse Practitioners; Epidemiologists; Cooks, Restaurant; Physical Therapist Assistants; and Physician Assistants. Four of the top five fast-growing occupations are health-related occupations.

Table A.11 shows the 50 highest earning occupations. In general, these occupations are in health, management, postsecondary education, science, and engineering fields. All of the top 10 are health occupations. However, any discussion of earnings must consider that wages vary with experience and occupations; the highest average wages may not necessarily have the highest entry level wages. The lowest average salary of these 50 high-earning occupations is \$108,710 for Airline Pilots, Copilots, and Flight Engineers and the highest salary is \$280,277 for Oral and Maxillofacial Surgeons. The high-earning occupations are generally not fast-growing or in high-demand.

Of the state's 775 specific occupations, 147 are expected to decline over the 2020 to 2030 period. Employment in the 20 sharpest-declining occupations will decline by at least three percent, with each losing a minimum of 80 jobs over the period (Table A.12). No efforts should be made to sustain these occupations because they are declining due to structural changes in the state economy.

**Table A.9 Top 40 High-Demand Occupations (Base Year 2020 and Projected Year 2030)**

Occupation	Average Annual Job Openings		
	Total	Due to Growth	Due to Separations
Customer Service Representatives	4,435	25	4,410
Heavy and Tractor-Trailer Truck Drivers	4,255	275	3,980
Registered Nurses	3,185	415	2,770
<b>General and Operations Managers</b>	<b>3,020</b>	<b>275</b>	<b>2,745</b>
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2,195	115	2,075
Accountants and Auditors	2,025	140	1,880
Maintenance and Repair Workers, General	1,735	105	1,630
Elementary School Teachers, Except Special Education	1,725	135	1,590
Software Developers and Software Quality Assurance Analysts and Testers	1,710	340	1,370
Industrial Machinery Mechanics*	1,615	345	1,270
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	1,065	65	1,000
Licensed Practical and Licensed Vocational Nurses	1,065	115	950
Medical and Health Services Managers*	830	220	610
Human Resources Specialists	725	60	660
Insurance Sales Agents	690	35	655
Market Research Analysts and Marketing Specialists	680	110	570
Management Analysts	615	85	530
Industrial Engineers*	605	160	440
Construction Managers	585	90	500
Computer User Support Specialists	570	55	515
<b>Financial Managers</b>	<b>555</b>	<b>105</b>	<b>450</b>
Logisticians*	545	120	430
Nurse Practitioners*	490	220	270
Educational, Guidance, School, and Vocational Counselors	490	45	440
Food Service Managers	470	35	435
Real Estate Sales Agents	465	15	450
<b>Lawyers</b>	<b>430</b>	<b>60</b>	<b>370</b>
Civil Engineers	410	55	355
Computer Systems Analysts	390	25	365
Electrical Engineers	355	55	305
Loan Officers	355	30	330
Network and Computer Systems Administrators	320	20	300
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	305	20	290
Mechanical Engineers	300	55	245
<b>Sales Managers</b>	<b>275</b>	<b>20</b>	<b>255</b>
<b>Industrial Production Managers</b>	<b>275</b>	<b>45</b>	<b>230</b>
Information Security Analysts*	220	60	160
<b>Pharmacists</b>	<b>190</b>	<b>10</b>	<b>185</b>
<b>Architectural and Engineering Managers</b>	<b>190</b>	<b>20</b>	<b>170</b>
<b>Marketing Managers</b>	<b>130</b>	<b>15</b>	<b>120</b>

Note: Occupations are growth- and wages weighted, and data are rounded to the nearest 5.

Occupations in bold are also high-earning. \* Qualify as both high-demand and fast-growing occupations.

Source: Alabama Department of Labor and Center for Business and Economic Research, The University of Alabama.

**Table A.10 Top 20 Fast-Growing Occupations (Base Year 2020 and Projected Year 2030)**

Occupation	Employment		Percent Change	Annual Growth (Percent)	Annual Total Openings
	2020	2030			
Nurse Practitioners*	4,070	6,250	53	4.38	490
Epidemiologists	60	90	41	3.49	5
Cooks, Restaurant	13,200	18,390	39	3.37	2800
Physical Therapist Assistants	1,630	2,230	37	3.19	290
Physician Assistants	690	940	36	3.14	70
Occupational Therapy Assistants	370	510	36	3.11	65
Electrical and Electronics Installers and Repairers, Transportation Equipment	180	240	35	3.05	20
Medical and Health Services Managers*	6,950	9,160	32	2.81	830
Information Security Analysts*	1,930	2,550	32	2.78	220
Computer Numerically Controlled Tool Programmers	390	510	31	2.76	60
Mechanical Door Repairers	170	230	31	2.75	20
Statisticians	220	290	31	2.72	25
Financial Examiners	1,430	1,810	27	2.43	155
Logisticians*	4,390	5,570	27	2.40	545
Industrial Machinery Mechanics*	13,300	16,740	26	2.33	1615
Industrial Engineers*	6,320	7,940	26	2.31	605
Forest Fire Inspectors and Prevention Specialists	40	50	24	2.21	5
Physical Therapist Aides	970	1,210	24	2.20	155
Massage Therapists	640	790	24	2.17	95
Speech-Language Pathologists	1,770	2,180	23	2.12	160

Note: Employment data are rounded to the nearest 10 and job openings are rounded to the nearest 5.

\* Qualify as both high-demand and fast-growing occupations.

Source: Alabama Department of Labor and Center for Business and Economic Research, The University of Alabama.

**Table A.11 Top 50 High-Earning Occupations (Base Year 2020 and Projected Year 2030)**

Occupation	Employment		Annual Growth (Percent)	Annual Job Openings	Mean Annual Salary (\$)
	2020	2030			
Oral and Maxillofacial Surgeons	70	80	0.96	5	\$280,277
Obstetricians and Gynecologists	90	90	-0.22	5	\$269,920
Surgeons, Except Ophthalmologists	460	450	-0.39	10	\$265,646
Anesthesiologists	220	220	0.14	5	\$264,482
Orthodontists	260	280	0.86	10	\$244,705
Family Medicine Physicians	850	900	0.68	30	\$227,766
Dentists, All Other Specialists	NA	NA	-0.41	0	\$221,916
Physicians, All Other; and Ophthalmologists, Except Pediatric	4,640	4,870	0.48	155	\$213,411
General Internal Medicine Physicians	170	170	-0.30	5	\$210,303
Psychiatrists	410	460	1.28	20	\$179,812
Chief Executives	2,120	1,950	-0.82	120	\$174,909
Dentists, General	1,520	1,670	0.90	55	\$172,053
Nurse Anesthetists	1,510	1,710	1.28	100	\$170,560



**Table A.11 Continued**

Occupation	Employment		Annual Growth (Percent)	Annual Job Openings	Mean Annual Salary (\$)
	2020	2030			
Pediatricians, General	280	270	-0.40	5	\$169,376
Architectural and Engineering Managers*	2,370	2,580	0.84	190	\$150,769
Economics Teachers, Postsecondary	190	210	0.66	20	\$134,068
Personal Financial Advisors	2,370	2,480	0.44	185	\$133,019
Financial Managers*	5,810	6,880	1.71	555	\$132,363
Computer and Information Systems Managers	4,190	4,610	0.97	365	\$129,412
Petroleum Engineers	60	60	0.49	5	\$128,870
Actuaries	90	100	1.60	10	\$128,232
Podiatrists	160	160	-0.06	10	\$127,052
Computer and Information Research Scientists	400	480	1.92	40	\$126,544
Engineers, All Other	3,500	3,550	0.14	225	\$124,556
Pharmacists*	4,790	4,880	0.18	190	\$124,170
Marketing Managers*	1,330	1,460	0.93	130	\$123,594
Physical Scientists, All Other	150	150	-0.07	10	\$123,377
Aerospace Engineers	3,600	4,140	1.40	265	\$123,203
General and Operations Managers*	32,100	34,860	0.83	3,020	\$121,798
Lawyers*	7,720	8,320	0.75	430	\$121,126
Administrative Law Judges, Adjudicators, and Hearing Officers	100	110	0.19	5	\$121,060
Natural Sciences Managers	190	200	0.42	15	\$120,780
Nuclear Engineers	110	100	-0.79	5	\$119,997
Optometrists	530	580	0.98	20	\$118,789
Economists	70	80	1.81	5	\$117,741
Physicists	130	140	0.30	10	\$116,694
Computer Hardware Engineers	1,150	1,140	-0.12	75	\$116,501
Area, Ethnic, and Cultural Studies Teachers, Postsecondary	70	80	0.69	5	\$116,248
Engineering Teachers, Postsecondary	580	640	1.01	60	\$115,521
Sales Managers*	2,970	3,180	0.70	275	\$114,588
Advertising and Promotions Managers	70	70	0.29	5	\$113,998
Electronics Engineers, Except Computer	1,550	1,650	0.63	110	\$113,824
Human Resources Managers	1,570	1,720	0.90	145	\$113,436
Industrial Production Managers*	3,250	3,700	1.31	275	\$113,308
Purchasing Managers	1,020	1,120	0.93	90	\$112,945
Administrative Services and Facilities Managers	1,310	1,430	0.89	120	\$110,551
Computer Network Architects	1,890	1,980	0.50	125	\$110,509
Education Administrators, Postsecondary	3,220	3,430	0.64	255	\$109,994
Compensation and Benefits Managers	90	90	0.55	5	\$109,770
Airline Pilots, Copilots, and Flight Engineers	310	310	0.13	35	\$108,710

Note: Employment and salaries data are rounded to the nearest 10; job openings to the nearest 5. The salary data provided are based on the May 2021 release of the Occupational Employment Statistics (OES) combined employment and wage file. Estimates for specific occupations may include imputed data. \* Qualify as both high-earning and high-demand occupations.

NA – Not available due to disclosure restrictions.

Source: Center for Business and Economic Research, The University of Alabama and Alabama Department of Labor.

**Table A.12 Selected Sharp-Declining Occupations (Base Year 2020 and Projected Year 2030)**

Occupation	Employment		Net Change	Percent Change
	2020	2030		
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	52,350	48,010	-4,340	-8
Cashiers	54,580	52,700	-1,880	-3
Tellers	8,010	7,040	-970	-12
Office Clerks, General	28,170	27,320	-850	-3
Cooks, Fast Food	9,190	8,430	-760	-8
Executive Secretaries and Executive Administrative Assistants	3,780	3,080	-700	-19
Inspectors, Testers, Sorters, Samplers, and Weighers	11,720	11,020	-700	-6
Bookkeeping, Accounting, and Auditing Clerks	21,930	21,230	-700	-3
Legal Secretaries	2,420	1,920	-500	-21
Computer Programmers	4,070	3,570	-500	-12
Interviewers, Except Eligibility and Loan	3,780	3,410	-370	-10
Data Entry Keyers	1,750	1,390	-360	-20
Structural Metal Fabricators and Fitters	3,320	3,010	-310	-9
Telemarketers	1,390	1,120	-270	-20
Couriers and Messengers	2,150	1,900	-250	-12
Switchboard Operators, Including Answering Service	980	760	-220	-23
Payroll and Timekeeping Clerks	1,660	1,470	-190	-12
Medical Transcriptionists	800	620	-180	-23
Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	340	250	-90	-27
Word Processors and Typists	210	130	-80	-35

Note: Employment data are rounded to the nearest 10.

Source: Alabama Department of Labor and Center for Business and Economic Research, The University of Alabama.

## Skills and Skills Gap Analyses

Jobs require skill sets and it is necessary that jobholders have the relevant skills. Table A.13 shows skill types and definitions as provided by O\*NET Online, which offers skill sets for all occupations ranked by the degree of importance. High-earning occupations typically require skills that are obtained in the pursuit of the higher education that such jobs require. Lower earning occupations require more basic skill sets. Some occupations have no minimum skill set requirements (e.g. dishwashers and maids).

Table A.14 shows the percentage of top occupations in Alabama that list a particular skill as primary. We define primary skills as the 10 most important skills in the required skill set for an occupation. It is important to note that a particular skill may be more important and more extensively used in one occupation than another. Table A.14 does not address such cross-occupational skill importance comparisons. In general, basic skills are most frequently listed as primary, which means that they are important for practically all jobs.

## Table A.13 Skill Types and Definitions

**Basic Skills:** Developed capacities that facilitate learning or the more rapid acquisition of knowledge.

Active Learning — Understanding the implications of new information for both current and future problem-solving and decision-making.

Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.

Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.

Learning Strategies — Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.

Mathematics — Using mathematics to solve problems.

Monitoring — Monitoring / Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.

Reading Comprehension — Understanding written sentences and paragraphs in work-related documents.

Science — Using scientific rules and methods to solve problems.

Speaking — Talking to others to convey information effectively.

Writing — Communicating effectively in writing as appropriate for the needs of the audience.

**Complex Problem Solving Skills:** Developed capacities used to solve novel, ill-defined problems in complex, real-world settings.

Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

**Resource Management Skills:** Developed capacities used to allocate resources efficiently.

Management of Financial Resources — Determining how money will be spent to get the work done and accounting for these expenditures.

Management of Material Resources — Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.

Management of Personnel Resources — Motivating, developing, and directing people as they work, identifying the best people for the job.

Time Management — Managing one's own time and the time of others.

**Social Skills:** Developed capacities used to work with people to achieve goals.

Coordination — Adjusting actions in relation to others' actions.

Instructing — Teaching others how to do something.

Negotiation — Bringing others together and trying to reconcile differences.

Persuasion — Persuading others to change their minds or behavior.

Service Orientation — Actively looking for ways to help people.

Social Perceptiveness — Being aware of others' reactions and understanding why they react as they do.

**Systems Skills:** Developed capacities used to understand, monitor, and improve socio-technical systems.

Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Systems Analysis — Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.

Systems Evaluation — Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system.

**Technical Skills:** Developed capacities used to design, set-up, operate, and correct malfunctions involving application of machines or technological systems.

Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.

Equipment Selection — Determining the kind of tools and equipment needed to do a job.

Installation — Installing equipment, machines, wiring, or programs to meet specifications.

Operation and Control — Controlling operations of equipment or systems.

Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.

Operations Analysis — Analyzing needs and product requirements to create a design.

Programming — Writing computer programs for various purposes.

Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.

Repairing — Repairing machines or systems using the needed tools.

Technology Design — Generating or adapting equipment and technology to serve user needs.

Troubleshooting — Determining causes of operating errors and deciding what to do about it.

Source: O\*NET Online (<http://online.onetcenter.org/skills/>).

**Table A.14 Percentage of Top Occupations for Which Skill Is Primary**

	Top 40 High-Demand Occupations	Top 20 Fast-Growing Occupations	Top 50 High-Earning Occupations
<b>Basic Skills</b>			
Active Learning	58	75	58
Active Listening	90	95	88
Critical Thinking	93	100	86
Learning Strategies	5	10	10
Mathematics	20	15	16
Monitoring	60	70	48
Reading Comprehension	90	85	86
Science	5	10	20
Speaking	85	85	88
Writing	50	45	60
<b>Complex Problem Solving Skills</b>			
Complex Problem Solving	70	85	74
<b>Resource Management Skills</b>			
Management of Financial Resources	0	0	2
Management of Material Resources	0	0	0
Management of Personnel Resources	13	10	14
Time Management	30	15	18
<b>Social Skills</b>			
Coordination	35	35	24
Instructing	5	25	10
Negotiation	20	0	10
Persuasion	20	5	10
Service Orientation	28	25	10
Social Perceptiveness	45	45	38
<b>Systems Skills</b>			
Judgment and Decision Making	55	55	78
Systems Analysis	15	20	12
Systems Evaluation	5	0	8
<b>Technical Skills</b>			
Equipment Maintenance	5	10	0
Equipment Selection	0	0	0
Installation	0	5	0
Operation and Control	8	5	2
Operation Monitoring	0	0	0
Operations Analysis	8	0	6
Programming	3	5	2
Quality Control Analysis	5	15	0
Repairing	5	10	0
Technology Design	0	0	0
Troubleshooting	10	5	0

Note: Rounding errors may be present.

Source: O\*NET Online and Center for Business and Economic Research, The University of Alabama

High-earning occupations require more science, speaking, writing, management of both financial and personnel resources, judgment and decision making, and system evaluation skills than both high-demand and fast-growing jobs. Some of these skills require long training periods and postsecondary education. However, high-earning jobs require less technical and social skills in general. In contrast, high-demand occupations in general require more social skills than fast-growing and high-earning occupations. Fast-growing occupations require more complex problem solving and technical skills than high-demand occupations.

Table A.15 shows skill gap indexes for all 35 skills in Table A.13 based on 2020 to 2030 occupation projections. Skills gap indexes range up to 100 and are standardized measures of the gap between current supply and projected job openings. The index does not provide any information about current or base year skill supply. It focuses on the projection period and identifies critical skill needs. The index essentially ranks expected training needs. The higher the index, the more critical the skill over the projection period.

For policy and planning purposes, skill gap indexes have to be considered together with replacement indexes, which are the expected shares of job openings due to replacement. Replacement is necessary because of turnover and people leaving the labor force. The smaller the replacement index, the larger the share of job openings due to job growth, which in turn implies a need to increase the pace of skill training. Skill gap indexes demonstrate the need to ramp up the scale of skill training while replacement indexes address the pace of training.

By skill type, the skill gap indexes show that basic skills are most critical followed by social, resource management, complex problem solving, systems, and technical skills. The importance of basic skills generally and for high-demand, fast-growing, and high-earning jobs indicates a strong need for training in these skills. The pace of training needs to increase for technical and a few basic (science) and resource management (materials and financial) skills, while the scale of training should be raised for basic and social skills.

## **Education and Training Issues**

Alabama's educational attainment is low compared to the nation. Over 87 percent of Alabamians age 25 and over have graduated from high school, compared to 89 percent for the United States. Of the total population over age 25, about 27 percent in Alabama have a bachelor's or higher degree, which is lower than the nation's 34 percent. Skill and education requirements for jobs keep rising. This highlights a strong need to raise educational attainment in the state.

Table A.16 shows the number of top occupations in Alabama for which a particular education category is most common. In general, high-earning occupations require high levels of educational attainment. All top 50 high-earning occupations require a bachelor's or higher degree with 21 requiring a doctoral or first professional degree. Twenty-nine (72.5 percent) of the 40 high-demand occupations require a bachelor's or higher degree at the minimum. Of the 20 fast-growing occupations, 12 (60.0 percent) require at least an associate degree at the minimum and 10 (50.0 percent) require at least a bachelor's degree.

The 2020 to 2030 occupational projections indicate that future jobs will require a minimum of postsecondary education and training. Current job ads are increasingly requiring more than a high school diploma or GED.

**Table A.15 Skills Gap Indexes (Base Year 2020 and Projected Year 2030)**

Skill Requirement	Skill Type	Total Openings (Projected Demand)	Skills Gap Index	Replacement Index
Active Listening	Basic	196,635	78	95
Speaking	Basic	180,865	72	95
Monitoring	Basic	157,885	63	94
Critical Thinking	Basic	153,315	61	94
Coordination	Social	151,280	60	94
Social Perceptiveness	Social	145,665	58	95
Reading Comprehension	Basic	143,080	57	95
Time Management	Resource	140,880	56	94
Service Orientation	Social	140,185	56	95
Writing	Basic	108,460	43	95
Judgment and Decision Making	Systems	104,320	42	93
Complex Problem Solving	Complex	100,565	40	92
Active Learning	Basic	99,255	40	92
Persuasion	Social	71,255	29	93
Negotiation	Social	65,950	27	94
Instructing	Social	60,750	25	91
Learning Strategies	Basic	54,065	22	91
Systems Analysis	Systems	53,655	22	91
Operations Monitoring	Technical	53,500	22	94
Systems Evaluation	Systems	45,640	19	91
Operation and Control	Technical	40,620	17	93
Mathematics	Basic	38,660	16	94
Management of Personnel Resources	Resource	36,655	15	92
Quality Control Analysis	Technical	35,780	15	93
Troubleshooting	Technical	27,605	11	93
Equipment Maintenance	Technical	17,920	8	92
Repairing	Technical	15,020	6	92
Management of Financial Resources	Resource	11,960	5	90
Equipment Selection	Technical	9,960	4	91
Operations Analysis	Technical	8,355	4	85
Management of Material Resources	Resource	7,135	3	89
Installation	Technical	5,245	3	93
Science	Basic	4,975	2	82
Programming	Technical	1,235	1	97
Technology Design	Technical	995	1	85

Note: These are annualized skills indexes based on 2020 to 2030 occupation projections.

Source: Center for Business and Economic Research, The University of Alabama, Alabama Department of Labor, O\*Net Online.

**Table A.16 Number of Top Occupations by Education/Training Requirement**

<b>Most Common Education/Training Requirements Categories</b>	<b>Top 40 High-Demand Occupations</b>	<b>Top 20 Fast-Growing Occupations</b>	<b>Top 50 High-Earning Occupations</b>
Doctoral Degree or First Professional Degree	2	0	21
Master's Degree	2	5	4
Bachelor's Degree	25	5	25
Associate Degree	0	2	0
Postsecondary Non-Degree	2	3	0
Some College, no Degree	1	0	0
High School Diploma or Equivalent	8	4	0
No Formal Educational Credential	0	1	0

Source: O\*NET Online; Center for Business and Economic Research, The University of Alabama; and Alabama Department of Labor.

## Implications and Recommendations

Alabama’s job growth is projected to be faster than labor force growth. From a 2020 base, worker shortfalls of about 111,500 are expected in 2030. The projected worker shortfalls are expected to rise to 139,600 and 181,400 in 2035 and 2040, respectively. By 2045, worker shortfalls of about 231,600 are expected (Table A.18). The state must therefore prioritize developing worker skills and addressing the projected shortfalls through 2045. Indeed, the state is currently experiencing worker shortfalls, which have been made worse by the recent pandemic.

Table A.17 Expected Worker Shortfall				
	2020-2030	2020-2035	2020-2040	2020-2045
Total population growth (%)	5.7	8.3	10.7	12.9
Age 20-64 growth (%)	5.7	8.2	10.6	12.9
Nonagricultural job growth (%)	11.3	15.2	19.7	24.5
Worker shortfall (%)	5.6	7.0	9.1	11.6
Worker shortfall (number)	111,452	139,643	181,439	231,610

Source: Center for Business and Economic Research, The University of Alabama.

Employment is critical to economic development, so strategies to address any potential shortfalls must be adopted and implemented. Such strategies should aim at increasing labor force participation, encouraging in-migration for faster labor force growth and raising worker productivity to meet workforce demand with efforts that include: (1) improvements in education and its funding; (2) continuation and enhancement of programs to assess, retrain, and place dislocated workers; (3) focus on hard-to-serve populations (e.g. out-of-school youth); (4) lowering the high school dropout rate; (5) use of economic opportunities to attract new residents; (6) encouragement of older worker participation in the labor force; and (7) facilitation of in-commuting.

Improving education is vital because a highly educated and productive workforce is a critical economic development asset. The educational and training requirements of high-demand, fast-growing, and high-earning occupations show the significance of education in developing the workforce of the future. The importance of basic skills in general and for high-demand, high-growth, and high-earning jobs demonstrates a strong need for training in these skills. The pace of training needs to increase for technical, basic (science), and resource management (materials and financial) skills, while the scale of training must also be raised for basic and social skills. Ideally, all high school graduates should possess basic skills so that postsecondary and higher education can focus on other and more complex skills while enhancing these basic skills. Employers should be an integral part of planning for training, as they can help identify future skill needs and any existing gaps. Education and training for the 20 sharp-declining occupations in Table A.13 should slow accordingly.

Another very important reason to improve education is that people with more education are more likely to be employed; data on worker participation and educational attainment show that labor force participation increases with worker education. Productivity also rises with education, which yields high private and social returns. Workforce development must view all of education and related programs (e.g. adult education, career technical training, worker retraining, career readiness, etc.) as one system. Funding to support workforce development may require tax reform at state and local



levels and must provide flexibility as workforce needs change over time and demand different priorities.

Programs to assess, retrain, and place dislocated workers—especially those affected by outsourcing and structural changes in the economy—should continue and be enhanced because they can improve the labor force participation rate. Hard-to-serve populations include persons in poverty, those receiving welfare, residents of sparsely populated areas, and those on active parole. These populations are often outside of the mainstream economy and are in poverty. They usually have difficulty finding work because they have low levels of educational attainment, lack occupational skills, or face geographic or other barriers. They are a potential human resource, but investment in training, transportation, childcare, eldercare, infrastructure, etc. may be needed to tap this resource.

In-migration is one way of growing the labor force, as it helps population growth. The state's population growth rate is low and may hinder its ability to meet the expected job demand, barring future economic slowdowns. Higher employment demand could be partially served by in-commuting. However, new residents can be attracted using the high-paying job opportunities from the state's numerous economic development successes. Investment in amenities and infrastructure may be needed to support such growth. In-migration is generally more beneficial to the state than in-commuting since it grows the economy faster and adds to the tax base.

Policies that facilitate and encourage older worker participation are needed, as older workers could help meet the state's workforce challenges. Such policies could be related to income taxation, job flexibility, and retirement programs. As the share of older people in the population is projected to increase (Table A.5), it becomes even more important that they be active in the workforce. Older worker participation has been rising nationally since the early 1990s. This has been attributed to reasons including:

- Older workers can work longer because they are healthier.
- The number of physically demanding jobs is falling.
- Defined contribution plans are replacing pensions.
- There are fewer employer-paid retiree health insurance programs.
- Social security reforms affecting those born after 1938 (i) gradually raised the full retirement age from 65 to 67, (ii) increased the rate at which monthly payments rise with delayed benefits, and (iii) eliminated the reduction in benefits for those working beyond the full retirement age.

Diversifying the state's economy will strengthen it. This demands that economic development must also focus on retaining, expanding, and attracting businesses that provide more high-earning jobs. Current workers—including the underemployed—would welcome higher-earning opportunities. An economic development focus on diversification would require that workforce development pay attention to postsecondary and higher educational systems to ensure a ready and available workforce for new and expanding businesses. The higher incomes earned by graduates of these institutions would help raise personal income for the state and provide additional tax revenue for the state and local (county and city) tax jurisdictions. Raising personal income by improving educational attainment and technological skills for a state that has low population and labor force growth rates is an effective economic development strategy. Together, workforce development and economic development can build a strong, well-diversified economy. Indeed, one cannot achieve success without the other.



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