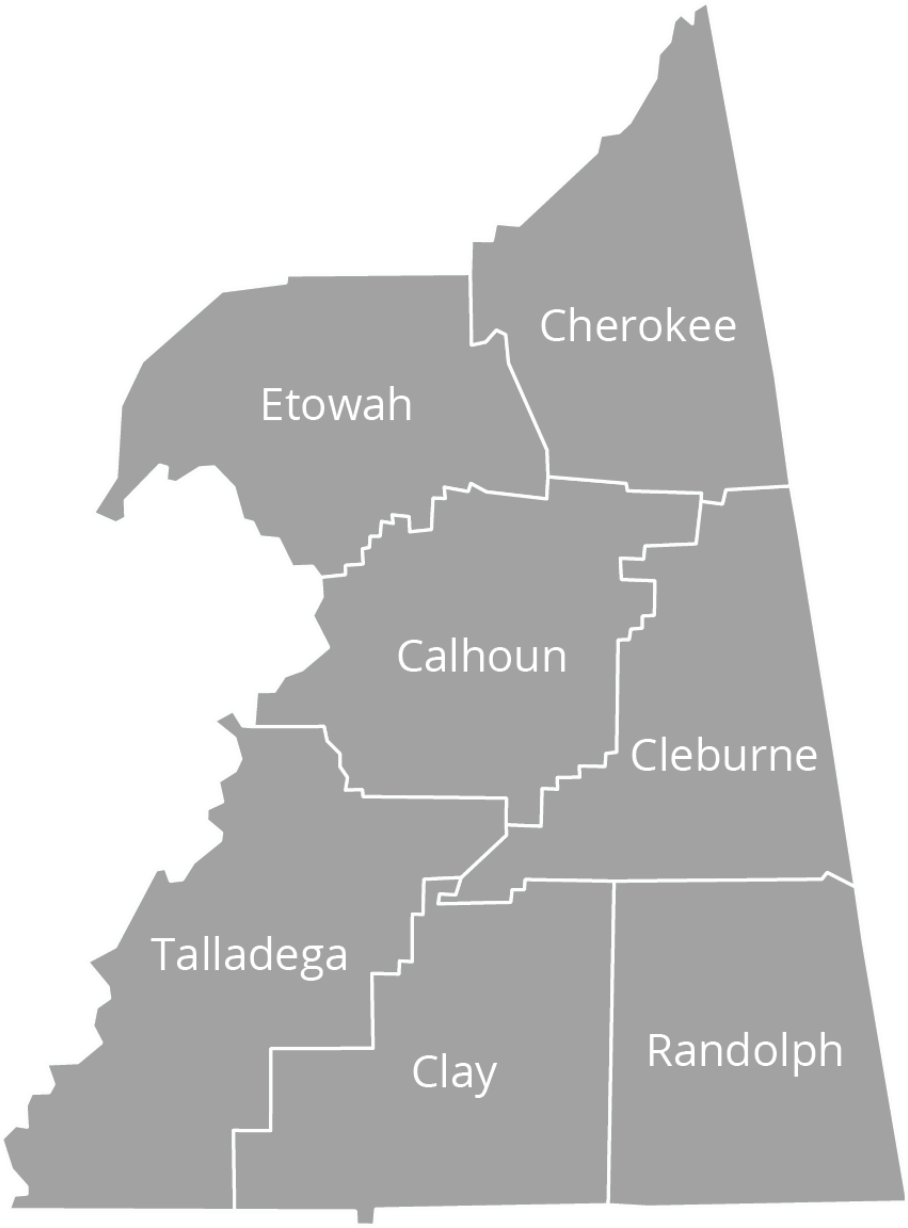
STATE OF THE WORKFORCE REPORT XV:

EAST ALABAMAWORKS



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SUMMARY

This report analyzes workforce supply and demand issues using available metrics of workforce characteristics for East AlabamaWorks and presents some implications and recommendations.

East AlabamaWorks had a 3.7 percent unemployment rate in March 2021, with 5,693 unemployed workers. With a 22.6 percent underemployment rate for 2020/2021, the region has an available labor pool of 38,991 that includes 33,298 underemployed workers who are looking for better jobs and are willing to commute farther and longer for such jobs.

The number of in- and out-commuters increased from 2005 to 2018, with net out-commuting rising from 13,136 to 19,355. Commute time and distance rose in 2020 from 2019, implying that congestion worsened. Congestion is likely to be light but could be an issue in the future as the region recovers from the COVID-19 pandemic and recent recession. This could slow economic development. Continuous maintenance and development of the region's transportation infrastructure and systems is essential to guarantee a smooth flow of workers and goods.

By sector, the top five employers in the region are manufacturing, health care and social assistance, retail trade, educational services, and accommodation and food services. In the first quarter of 2020, these five sectors provided 84,471 jobs, 68.4 percent of the regional total. Two of these top employers—manufacturing and educational services—paid more than the region's average monthly wage of $3,696. Economic developers should seek to diversify and strengthen the region's economy by retaining, expanding, and attracting more high-wage providing industries, while also preparing workers for these industries.

On average 4,791 jobs were created per quarter from the second quarter of 2001 to the first quarter of 2020. Quarterly net job flows averaged negative 46 due to huge job losses in the last quarter of 2020 due to the COVID-19 led recession. Job creation is the number of new jobs that are added in the region 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.

The top five high-demand occupations are Assemblers and Fabricators, All Other, Including Team Assemblers; Combined Food Preparation and Serving Workers, Including Fast Food; Retail Salespersons; Helpers--Production Workers; and Laborers and Freight, Stock, and Material Movers, Hand.

The top five fast-growing occupations are Occupational Therapy Assistants; Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic; Floor Layers, Except Carpet, Wood, and Hard Tiles; Speech-Language Pathologists; and Physical Therapist Assistants.

The top 50 high-earning occupations are mainly in management, healthcare, postsecondary education, and engineering fields and have a minimum salary of $80,585. Eight of the top 10 are health occupations and the remainder are in management and computer science.

Of the top 40 high-demand, the top 20 fast-growing, and 50 high-earning occupations, three belong in all three categories. Eight occupations are both high-demand and fast-growing, six are both high-demand and high-earning, and four are both high-earning and fast-growing.

Of the region's 713 occupations, 143 are expected to decline over the 2018 to 2028 period. Twenty occupations are expected to drop by a minimum of 10 jobs (for those with disclosed net changes) and at least five percent. Education and training for these 20 occupations should slow accordingly.

Skill and education requirements for jobs keep rising. Educational and training requirements of high-demand, fast-growing, and high-earning occupations demonstrate the importance of education in developing the future workforce. In the future, more jobs will require a minimum of postsecondary education and training.

The importance of basic skills generally and for high-demand, high-growth, and high-earning jobs specifically indicates a strong need for training in these skills. The scale of training needs to increase for basic and social skills, and the pace of training should be raised for technical, resource management, and systems 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.

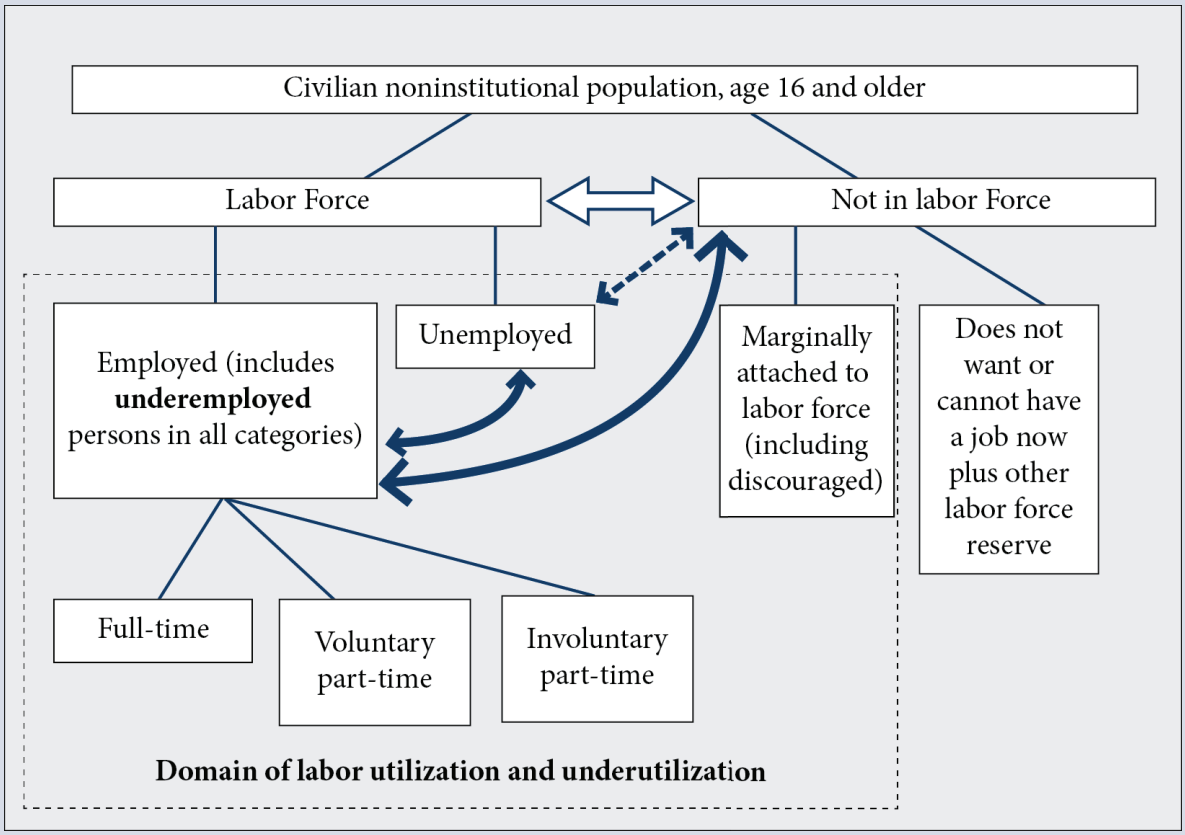
From a 2018 base, worker shortfalls of about 21,600 for 2028 and 29,900 for 2030 are expected. By 2040, the worker shortfall will grow to 50,000. This demands a focus on worker skills and the expected shortfalls through 2040. Worker shortfalls for critical occupations will need to be addressed continuously. Strategies to address skill needs and worker shortfalls might include (1) improving education and its funding; (2) introducing economic opportunities that attract new and younger residents; (3) lowering the high school dropout rate; (4) focusing on hard-to-serve populations (e.g., out-of-school youth); (5) continuing and enhancing programs to assess, retrain, and place dislocated workers; (6) encouraging older worker participation in the labor force; and (7) facilitating 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 types of education and other 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.

The higher incomes that come with improved educational attainment and work skills will help to increase personal income for the region as well as raise additional local (county and city) tax revenues. This is especially important for a region that has declining population and low labor force growth rates.

Together, workforce development and economic development can build a strong, well-diversified East AlabamaWorks economy. Indeed, we cannot achieve success in one without the other.

LABOR UTILIZATION AND SUPPLY FLOWS



Source: Addy et al[1] and Canon et al[2]

The chart above presents labor utilization and supply flows that explain labor market dynamics in view of recent study findings. The civilian noninstitutional population, age 16 and above, includes participants in the labor force and nonparticipants. The labor force is made 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. It has been shown that 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.[1, 2] Nonparticipant flows to employment are 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.

[1]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) .
[2]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, age 16 and over, who 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, discouraged workers, and the disabled). Table 2.1 shows labor force information for East AlabamaWorks and its seven counties for 2020 and March 2021. 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.

The 2007 recession raised the number of unemployed and raised county unemployment rates to double-digit levels in 2009 through 2011 but after a long and slow economic recovery coupled with outmigration, county unemployment declined to record lows. However, the emergence of the COVID-19 pandemic and the ensuing economic recession in the first quarter of 2020 led to a sharp increase in unemployment in the region. As personal protection equipment and testing became more available and Congress provided relief through the CARES Act, businesses and employers resumed operations, albeit

Table 2.1 East AlabamaWorks Labor Force Information

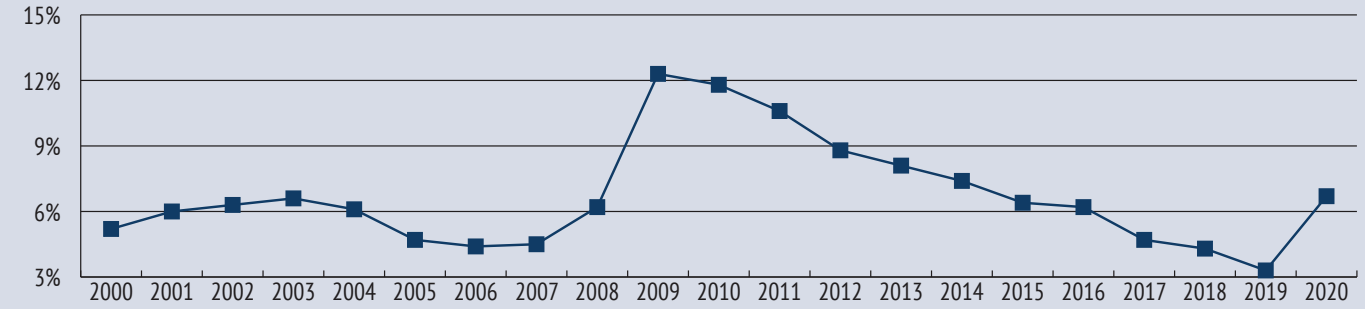
	2020 Annual Average			
	Labor Force	Employed	Unemployed	Rate (%)
Calhoun	46,240	42,980	3,260	7.1
Cherokee	11,513	10,983	530	4.6
Clay	6,083	5,838	245	4.0
Cleburne	5,737	5,475	262	4.6
Etowah	40,724	37,598	3,126	7.7
Randolph	9,414	8,967	447	4.7
Talladega	36,123	33,591	2,532	7.0
East ALWorks	155,834	145,432	10,402	6.7
Alabama	2,230,118	2,099,062	131,056	5.9
U.S.	160,742,000	147,795,000	12,947,000	8.1
	March 2021			
	Labor Force	Employed	Unemployed	Rate (%)
Calhoun	45,771	43,917	1,854	4.1
Cherokee	11,295	11,012	283	2.5
Clay	6,097	5,930	167	2.7
Cleburne	5,577	5,434	143	2.6
Etowah	39,268	37,681	1,587	4.0
Randolph	9,281	9,022	259	2.8
Talladega	35,673	34,273	1,400	3.9
East ALWorks	152,962	147,269	5,693	3.7
Alabama	2,213,954	2,138,166	75,788	3.4
U.S.	160,397,000	150,493,000	9,905,000	6.2

Note: Not seasonally adjusted.
Source: Alabama Department of Labor and U.S. Bureau of Labor Statistics.

at a staggered pace. This had the effect of lowering unemployment significantly towards the end of 2020 and annual county unemployment ranged between 4.0 percent to 7.7 percent for 2020 (6.7 percent for the region) for the year. The regional unemployment rate was above the statewide rate of 5.9 percent. A faster economic recovery continued in the region due to the availability of COVID-19 vaccines and more economic relief through the Consolidated Appropriations Act, 2021 and American Rescue Plan Act, 2021. By end of March 2021, county unemployment rates declined significantly and ranged from 2.5 percent to 4.1 percent, with 3.7 percent for the region. The unemployment rates were lowest in Cherokee County and highest in Calhoun. Four of the seven counties had lower unemployment rates than Alabama's 3.4 percent in March 2021.

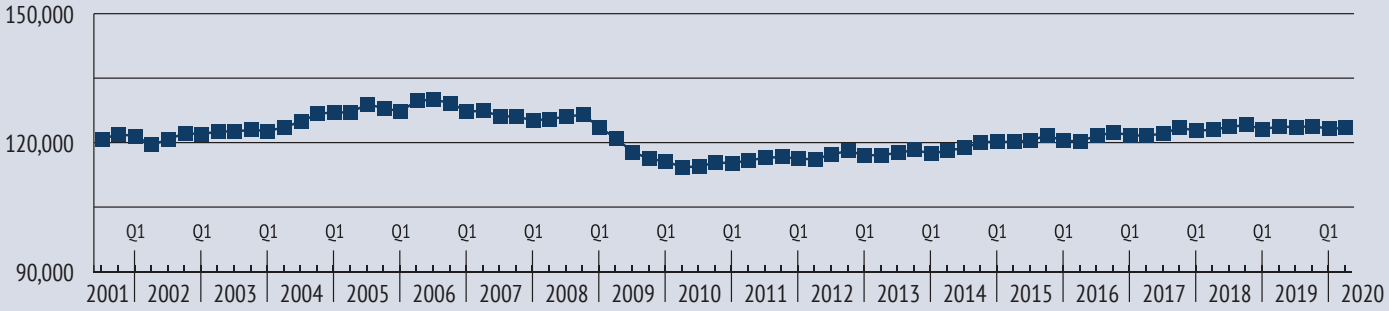
Annual unemployment rates for 2000 to 2020 are shown in Figure 2.1. The region's unemployment rates were low before 2001 and the most recent recession. The 2003 high of 6.6 percent was due to the 2001 recession, which adversely affected manufacturing, the region's largest

Figure 2.1 East AlabamaWorks Unemployment Rate



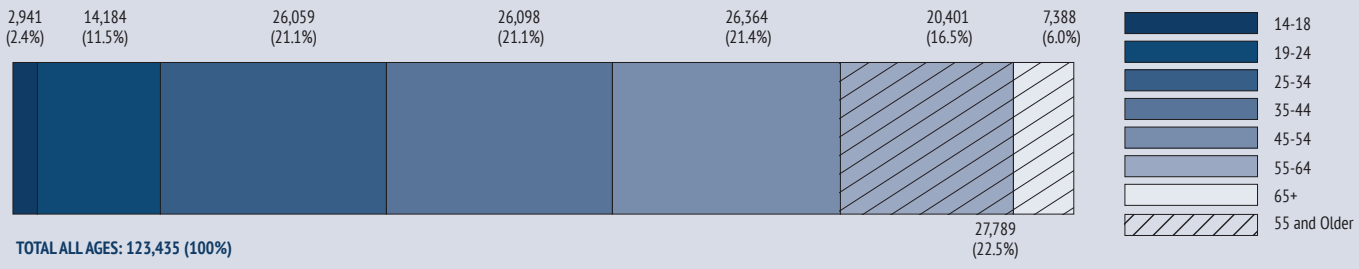
Source: Alabama Department of Labor.

Figure 2.2 East AlabamaWorks Nonagricultural Employment



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

Figure 2.3 Nonagricultural Employment - Workers by Age Group (First Quarter 2020)



Source: U.S. Census Bureau, Local Employment Dynamics Program.
Note: Rounding errors may be present. Nonagricultural employment is by place of work, not residence.

employer. Subsequent employment gains brought the unemployment rate to lows of 4.4 and 4.5 percent in 2006 and 2007, respectively. The 2007 recession led to major job losses, which raised the regional unemployment rate to a record high of 12.3 percent in 2009. Due to structural changes in the region's economy, economic recovery was slow. Nevertheless, the regional unemployment rate declined below pre-recession levels in 2018. In 2019, the unemployment rate dropped to a record low of 3.3 percent, as the longest economic expansion in decades persisted. However, regional unemployment rose to 6.7 percent in 2020 because of massive job losses caused by the COVID-19 led recession. Unemployment rate has been falling at a slow rate in 2021 as COVID-19 persistence and supply chain backlogs and interruptions continue to limit business operations and labor supply. The persistence of the pandemic, structural changes, and supply chain limitations will remain a challenge for the region over the next few years. Economic recovery from the recent recession will depend on controlling COVID-19 infections and economic development policy that address out-migration. The region's total employment was declining prior to the 2007 recession due to structural changes and out-migration.

Quarterly nonagricultural employment of the region's residents averaged 121,802 from the second quarter of 2001 to the first quarter of 2020 (Figure 1.2). After major losses due to the 2007 recession, the number of jobs grew at a very slow pace since first quarter of 2010 but flatten out somewhat after the third quarter of 2017 when it reached 123,463. By the first quarter of 2020, regional employment was 123,187.

Figure 2.3 shows worker distribution by age in East AlabamaWorks for the first quarter of 2020. Older workers, age 55 and over, are 22.5 percent of the region's nonagricultural employment, which is below the state's 22.8 percent. At 6.0 percent, the region has a similar proportion of workers who are age 65 and over as the state. To meet long term occupational projections for growth and replacement, labor force participation of younger residents must increase. Otherwise, older workers may have to work longer.

Commuting Patterns

In 2005, more residents commuted out of the region for work than nonresidents who commuted in (Table 2.2) with a net commuter outflow of 13,136. In 2007, more people were in- and out-commuting and the net commuter outflow rose to 19,367. Recent economic development efforts in the region slowed the increase of commuter outflow and increased commuter inflow. However, in 2018, net commuter outflow rose to 19,355. Calhoun, Talladega, and Etowah counties had the largest commuter in- and outflows within the region. About 14,000 workers in East AlabamaWorks commute from Central Six AlabamaWorks, 8,600 from North AlabamaWorks, and 5,800 commute from Central AlabamaWorks regions. In contrast, about 21,000 residents of East AlabamaWorks work in Central Six, 11,600 in North, and 6,600 in Central region. About 10,400 residents of East AlabamaWorks out-commute to Georgia for work.

Table 2.2 also shows the one-way average commute time and distance for workers in East AlabamaWorks. Average commute distance and time rose in 2020 from 2019 implying that congestion worsened in the region. Increased out-commuting from the region is likely to keep traffic light, but as the region recovers from the COVID-19 pandemic-led recession congestion could be an issue. Congestion can impede the mobility of workers and goods hence delaying or slowing economic development, so East AlabamaWorks' transportation infrastructure and systems must be properly maintained and developed for optimum economic growth.

Table 2.2 East AlabamaWorks Commuting Patterns

Year	Inflow	Outflow
2005	28,988	42,124
2006	27,958	44,013
2007	30,508	49,875
2008	31,385	49,684
2009	31,425	48,721
2010	31,978	49,032
2011	34,073	48,782
2012	33,083	50,473
2013	34,152	51,384
2014	34,630	51,337
2015	33,809	51,864
2016	34,637	52,609
2017	35,874	54,481
2018	35,952	55,307

East ALWorks Counties	Inflow, 2018		Outflow, 2018	
	Number	Percent	Number	Percent
Calhoun	18,835	32.3	18,795	24.2
Cherokee	2,416	4.1	5,975	7.7
Clay	1,895	3.2	3,403	4.4
Cleburne	1,072	1.8	4,449	5.7
Etowah	15,597	26.7	18,218	23.4
Randolph	1,847	3.2	6,119	7.9
Talladega	16,681	28.6	20,739	26.7

	Percent of Workers					
Average commute time (one-way)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Less than 20 minutes	49.6	49.5	50.9	48.3	45.6	45.2
20 to 40 minutes	24.8	24.3	25.1	24.4	31.2	29.0
40 minutes to an hour	11.8	13.0	10.5	10.7	10.2	10.5
More than an hour	4.1	4.4	4.2	6.0	4.8	5.1
Average commute distance (one-way)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Less than 10 miles	41.4	43.6	42.2	39.4	37.4	38.0
10 to 25 miles	34.9	26.7	30.8	33.0	33.0	31.7
25 to 45 miles	11.1	18.8	16.8	14.5	17.0	17.1
More than 45 miles	11.1	8.2	8.4	10.1	9.3	10.2

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 East AlabamaWorks population count of 383,099 for 2010 was 3.3 percent more than in 2000 (Table 2.3), a lower growth rate than the state's 7.5 percent. The population grew in all the counties, except Clay County, which lost population. Population growth was fastest in Cherokee, Cleburne, and Calhoun counties. The 2020 decennial census portray a significant regional population decline of 1.3 percent from 2010, with five of the seven counties losing population. Randolph County had the fastest population decline followed by Cherokee. Clay County registered the highest population growth followed by Cleburne but the growth in actual numbers paled in comparison to the decline in the other counties.

Table 2.4 shows population decennial counts, estimates, and projections by age group up to 2040. The population aged 65 and over is expected to grow as more baby boomers turn 65. Unfortunately, the youth age group (0-19), prime working age group (20-64), and total population are expected to decline through 2040 due to out-migration. This poses a challenge for economic development, especially workforce development. If employment grows as expected, investments in amenities and infrastructure to attract workers and new residents will be necessary.

Table 2.3 East AlabamaWorks Population

County	1990 Census	2000 Census	2010 Census	2020 Census	Change 2000-2010 Number	Change 2000-2010 Percent	Change 2010-2020 Number	Change 2010-2020 Percent
Calhoun	116,034	112,249	118,572	116,441	6,323	5.6	-2,131	-1.8
Cherokee	19,543	23,988	25,989	24,971	2,001	8.3	-1,018	-3.9
Clay	13,252	14,254	13,932	14,236	-322	-2.3	304	2.2
Cleburne	12,730	14,123	14,972	15,056	849	6.0	84	0.6
Etowah	99,840	103,459	104,430	103,436	971	0.9	-994	-1.0
Randolph	19,881	22,380	22,913	21,967	533	2.4	-946	-4.1
Talladega	74,107	80,321	82,291	82,149	1,970	2.5	-142	-0.2
East ALWorks Total	355,387	370,774	383,099	378,256	12,325	3.3	-4,843	-1.3
Alabama	4,040,587	4,447,100	4,779,736	5,024,279	332,636	7.5	244,543	5.1
United States	248,709,873	281,421,906	308,745,538	331,449,281	27,323,632	9.7	22,703,743	7.4

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

Table 2.4 Population by Age Group and 2040 Projections

Age Group	2000	2010	2018	2028	2030	2035	2040
0-19	99,418	99,195	96,146	93,753	92,843	90,986	89,725
20-24	23,521	23,929	22,914	23,017	22,861	22,829	22,562
25-29	23,898	22,465	26,698	23,484	23,401	23,083	23,079
30-34	24,560	22,414	24,958	23,891	23,708	23,590	23,262
35-39	26,662	24,677	24,933	23,755	23,639	23,342	23,302
40-44	28,149	25,240	23,484	23,987	23,272	23,144	22,958
45-49	26,760	27,262	24,833	23,996	24,326	22,620	22,598
50-54	25,342	28,457	24,153	22,811	22,686	23,601	21,993
55-59	20,130	26,427	25,806	22,001	21,964	21,811	22,761
60-64	17,573	24,595	24,387	21,780	20,807	20,880	20,821
65+	54,761	58,438	60,911	72,014	74,040	75,355	75,907
20-64 Total	**216,595**	**225,466**	**222,167**	**208,723**	**206,664**	**204,900**	**203,337**
Total Population	**370,774**	**383,099**	**379,225**	**374,489**	**373,547**	**371,242**	**368,968**
Change from 2018							
0-19				-2.5%	-3.4%	-5.4%	-6.7%
20-64				-6.1%	-7.0%	-7.8%	-8.5%
Total Population				-1.2%	-1.5%	-2.1%	-2.7%

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

Educational Attainment

Educational attainment in East AlabamaWorks for residents who are 25 years old and over is shown in Table 2.5 and Figure 2.6. Of this population, 82.6 percent graduated from high school or higher and 16.6 percent held a bachelor's or higher degree from 2015 to 2019. This is below Alabama's 86.2 percent for high school and 25.5 percent for a bachelor's degree or higher. Educational attainment was below the state average in all counties in East AlabamaWorks. Etowah County had the highest educational attainment for high school graduates or higher followed by Calhoun. For bachelor's degree or higher, Calhoun County had the highest educational attainment followed by Etowah. Clay County had the lowest educational attainment followed by Cleburne high school diplomas and Cherokee for bachelor's degrees. Educational attainment is important since skills rise with education and high-wage jobs in the 21st century demands more skill sets. The low educational attainment in the region needs to be addressed.

Underemployment and Available Labor

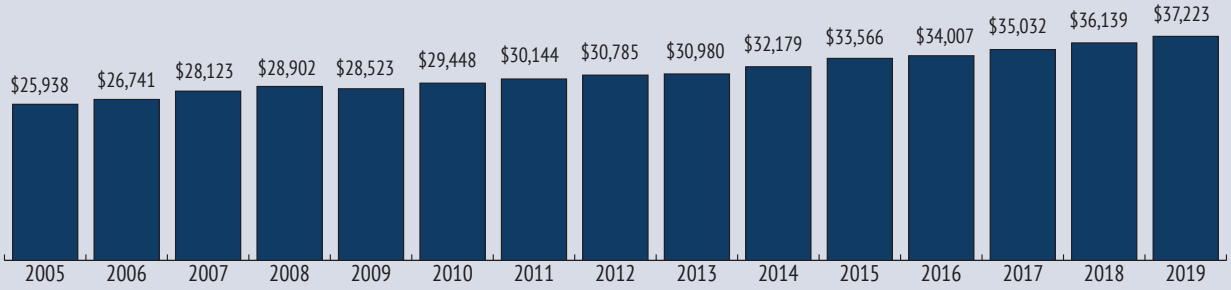
Labor force data are often limited to information on the employed and the unemployed that is available from government sources. However, this information is not complete from the perspective of employers. New or expanding employers are also interested in underemployment because current workers are potential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

Per Capita Income

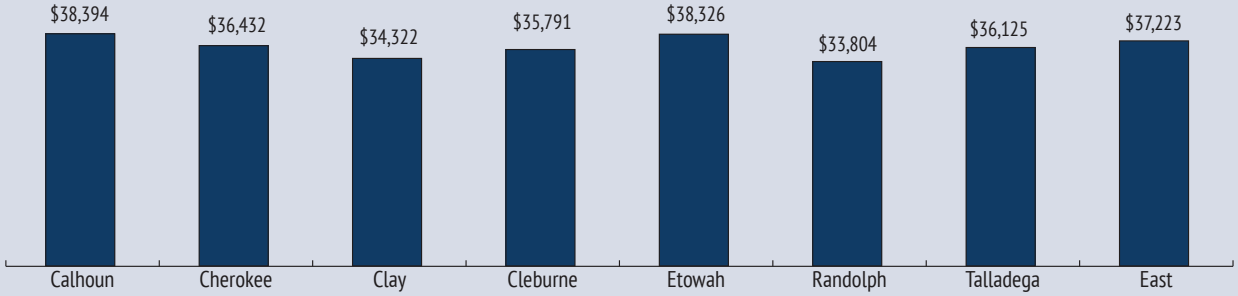
Per capita income (PCI) in East AlabamaWorks was $37,223 in 2019 (Figure 2.4), up 43.5 percent from 2005. However, the region's PCI was $6,922 or 15.7 percent below the state average of $44,145. County PCIs are shown in Figure 2.5. PCIs were significantly below the state's average in all the counties in the region. At $38,394, Calhoun County had the highest PCI followed by Etowah at $38,326 and Cherokee with $36,432. Randolph County had the lowest PCI at $33,804 followed by Clay with $34,322.

Figure 2.4 East AlabamaWorks Per Capita Income



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

Figure 2.5 County Per Capita Income, 2019



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

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 places that have such workers regardless of those areas' unemployment rates. A low unemployment rate, which may falsely suggest limited labor availability, is therefore not a hindrance to the business.

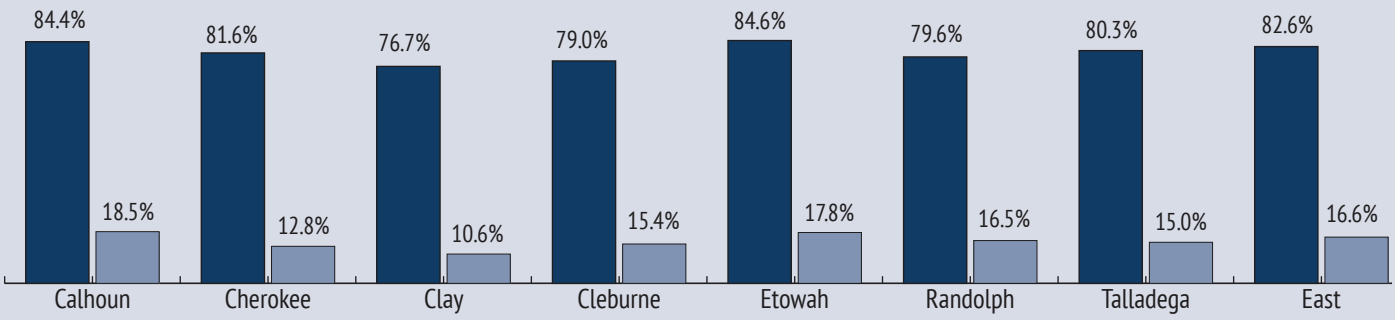
The underemployed present a significant pool of labor because they tend to respond to job opportunities that they believe are better for reasons that include (i) higher income, (ii) more benefits, (iii) superior terms and conditions of employment, and (iv) a better match with skills, training, and experience. 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 is a necessary first step in considering this group for economic development, workforce training, planning, and other purposes. It is important to note that the underemployed

Table 2.5 Educational Attainment of Population 25 Years and Over, 2015-2019

	Calhoun	Cherokee	Clay	Cleburne	Etowah	Randolph	Talladega	East
Total	79,108	18,874	9,459	10,481	72,032	15,776	55,993	261,723
No schooling completed	1,053	264	63	165	1,033	292	730	3,600
Nursery to 4th grade	352	30	94	70	427	55	338	1,366
5th and 6th grade	603	293	238	98	712	195	325	2,464
7th and 8th grade	2,073	702	556	358	1,301	587	1,595	7,172
9th grade	1,876	612	310	469	1,631	399	1,929	7,226
10th grade	2,664	630	639	381	2,490	690	2,334	9,828
11th grade	2,424	784	163	507	1,742	576	2,177	8,373
12th grade, no diploma	1,270	163	142	150	1,791	419	1,586	5,521
High school graduate/equivalent	25,940	7,598	3,577	3,980	23,668	5,502	18,881	89,146
Some college, less than 1 year	5,592	983	485	666	5,281	1,218	3,765	17,990
Some college, 1+ years, no degree	14,167	2,823	1,292	1,423	12,609	1,939	9,193	43,446
Associate degree	6,474	1,585	901	598	6,532	1,297	4,763	22,150
Bachelor's degree	8,311	1,254	562	1,056	7,899	1,513	5,270	25,865
Master's degree	4,484	677	345	378	3,444	839	2,406	12,573
Professional school degree	987	369	71	116	968	159	469	3,139
Doctorate degree	838	107	21	66	504	96	232	1,864

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

Figure 2.6 Educational Attainment, 2015-2019



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

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.

East AlabamaWorks had an underemployment rate of 22.6 percent, the highest in Alabama in 2020/2021. Applying this underemployment rate to March 2021, labor force data means that 33,298 employed residents were underemployed (Table 2.6). Adding the unemployed workers to the unemployed persons in the East region gives a total available labor pool of 38,991. This is 6.8 times the number of unemployed and is a more realistic measure of the available labor pool in the region. 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. County underemployment rates ranged from 13.6 percent for Clay County to 28.4 percent for Etowah. Etowah County had the largest available labor pool, and Clay had the smallest. The underemployed workers are willing to commute longer and farther for a better job. For the one-way commute, 42.4 percent of the underemployed workers are prepared to travel for 20 or more minutes longer while 36.4 percent will go 20 or more extra miles. In contrast, 37.1 percent of all workers are prepared to go more than 20 minutes longer and 30.1 percent will go more than 20 miles for a better job.

Underemployment rates for counties, AlabamaWorks regions, and the state were determined from an extensive survey on the state's workforce. A total of 983 complete responses were obtained from the East AlabamaWorks region. About half of the respondents (470) were employed, of whom 116 respondents stated that they were underemployed. Ranked by popularity, the primary reasons given 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 obligation; spouse or partner having a really good job; retirement; child care responsibilities; caring for someone else other than a child; and owning a house in the area. Ongoing economic development efforts can help in this regard. Nonworkers cite retirement and disability as the main reasons for their status, as well as social security limitations, a lack of job opportunities in their area. Such workers may become part of the labor force if these problems can be addressed. Indeed, a recent study found that the flow of labor force nonparticipants to employment status was 60 percent more than that of unemployed workers who gain employment. [3] This implies that the region's available labor pool could be larger than estimated in this report.

A comparison of underemployed workers to the overall workforce in East AlabamaWorks shows that:

- Fewer work full-time and fewer of the part-timers prefer full-time jobs.
- Fewer hold multiple jobs.
- They have longer commuter distances.
- More work in computer and mathematical; life, physical, and social science; community and social services; education, training, and library; healthcare practitioners and technical; food preparation and serving related; building and grounds cleaning and maintenance; personal care and service; sales and related; office and administration support; transportation and material moving; and other occupations.
- More are in manufacturing; retail trade; information; real estate and rental and leasing; administrative and support and waste management and remediation services; educational services; and accommodation and food services industries.
- They earn less and have shorter job tenure.
- More were laid-off or furloughed from their jobs in the past 3 months.

Table 2.6 Underemployed and Available Labor by County

	East	Calhoun	Cherokee	Clay	Cleburne	Etowah	Randolph	Talladega
Labor force	152,962	45,771	11,295	6,097	5,577	39,268	9,281	35,673
Employed	147,269	43,917	11,012	5,930	5,434	37,681	9,022	34,273
Underemployment rate	22.6%	19.8%	20.5%	13.6%	22.0%	28.4%	25.4%	26.6%
Underemployed workers	33,298	8,674	2,259	809	1,195	10,705	2,287	9,110
Unemployed	5,693	1,854	283	167	143	1,587	259	1,400
Available labor pool	**38,991**	**10,528**	**2,542**	**976**	**1,338**	**12,292**	**2,546**	**10,510**

Note: Rounding errors may be present. Based on March 2021 labor force data and 2020/2021 underemployment rates.
Source: Center for Business and Economic Research, The University of Alabama and Alabama Department of Labor.

[3] Canon, M.E., Kudlyak, M., and Reed, M. (2014). Not Everyone Who Joins the Ranks of the Employed was "Unemployed", *The Regional Economist*, January.

- Fewer believe their jobs fit well with their education and training, skills, and experience.
- More believe they are qualified for a better job.
- More would leave their current jobs for higher income even for 0 to 5 percent more.
- For a better job, more are willing to commute longer times and distances.
- Fewer are satisfied with their current jobs.
- More sought better jobs in the preceding quarter.
- More are willing to train for a better job, except when they have to pay the full cost.
- Their median age (51) is 2 years lower.
- More have higher educational attainment; 40.5 percent of underemployed workers have a bachelor's degree or a postgraduate degree compared to 35.7 percent of all workers.
- Fewer are female.
- More are African-American or other nonwhite racial groups and Hispanic ethnicities.

Table 2.7 shows the detailed survey results on job satisfaction and willingness to train. Responses for overall job satisfaction as well as various aspects of the job were obtained. In general, most of the region's workers (79.9 percent) are satisfied or completely satisfied with their jobs. Workers are most satisfied with the work they do and least satisfied with the earnings they receive. Fewer underemployed workers are satisfied with their jobs (65.5 percent). The underemployed are much more dissatisfied with their earnings and most satisfied with their work shift.

Workers are generally willing to train for a new or better job, with the underemployed being much more willing (62.4 percent vs. 48.8 percent). However, the 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. The underemployed are more willing to train for the new or better job except when they have to pay the full cost of training. The results strongly show that workers expect the government to bear at least a part of the training cost. This expectation may result from worker awareness of government workforce programs that provide such assistance.

Table 2.7 Job Satisfaction and Willingness to Train (Percent)

	Job Satisfaction				
	Completely Dissatisfied	Dissatisfied	Neutral	Satisfied	Completely Satisfied
Employed					
Overall	1.8	3.5	14.0	24.8	55.2
Earnings	5.3	10.1	17.7	27.7	39.2
Retention	1.2	3.3	6.6	14.6	73.7
Work	0.6	1.0	7.6	20.5	70.4
Hours	2.0	3.7	11.5	20.3	62.0
Shift	2.7	3.1	7.4	16.8	69.8
Conditions	2.0	4.7	11.3	24.4	56.5
Commuting Distance	4.7	5.3	10.3	14.6	64.9
Underemployed					
Overall	4.3	8.6	21.6	30.2	35.3
Earnings	12.9	16.4	26.7	22.4	21.6
Retention	2.6	6.0	17.2	17.2	62.9
Work	0.9	2.6	12.1	24.1	60.3
Hours	3.5	4.3	10.3	25.0	56.0
Shift	6.0	2.6	11.2	20.7	59.5
Conditions	6.0	7.8	15.5	19.8	49.1
Commuting Distance	4.3	8.6	10.3	15.5	61.2

	Willingness to Train				
	Completely Unwilling	Unwilling	Neutral	Willing	Completely Willing
Employed					
For a new or better job	26.1	5.0	17.5	10.0	38.9
If paid by trainee	45.3	20.3	19.3	4.8	7.1
If paid by trainee and government	18.3	8.7	34.4	18.0	15.8
If paid by government	8.0	3.5	11.9	18.3	56.4
Underemployed					
For a new or better job	16.8	2.0	16.8	10.9	51.5
If paid by trainee	40.5	28.6	20.2	3.6	3.6
If paid by trainee and government	14.3	8.3	39.3	16.7	17.9
If paid by government	2.4	0.0	8.3	16.7	70.2

Note: Rounding errors may be present.
Source: Center for Business and Economic Research, The University of Alabama.

WORKFORCE DEMAND

Industry Mix

The manufacturing sector was the leading employer with 27,507 jobs in the first quarter of 2020 (Table 2.8). Rounding out the top five industries by employment are health care and social assistance, retail trade, educational services, and accommodation and food services. These five industries provided 84,471 jobs, 68.4 percent of the regional total. The average monthly wage across all industries in East AlabamaWorks was $3,696. Only one of the leading employers—manufacturing—paid more than this average. The highest average monthly wages were for utilities at $7,363, mining at $6,710, finance and insurance at $4,959, and manufacturing with $4,917. Accommodation and food services paid the least at $1,598. New hire monthly earnings averaged $2,216 or 60.0 percent of the region's average monthly wage. Mining had the highest average monthly new hire wages at $4,345, followed by construction at $3,828 and wholesale trade with $3,686. At $1,059, Accommodation and food services paid newly hired workers the least.

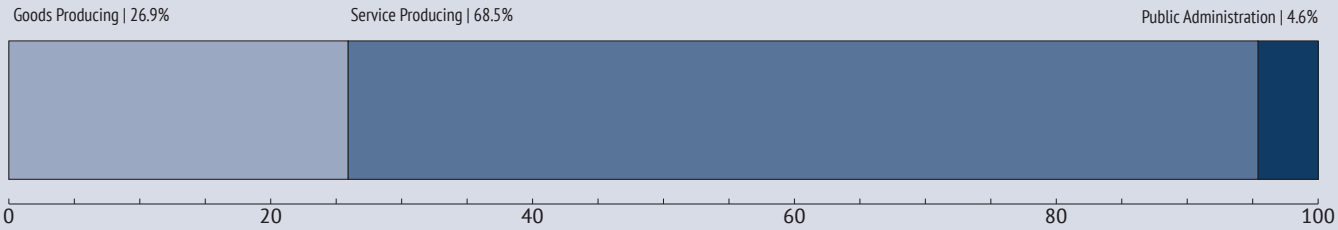
By broad industry classification, service providing industries generated 69.5 percent of jobs in first quarter 2020 (Figure 2.7). Goods producing industries were next with 25.9 percent, and public administration accounted for 4.6 percent. The distribution is for all nonagricultural jobs in the region, but there is significant variation by county.

Table 2.8 Industry Mix (First Quarter 2020)

Industry by 2-digit NAICS Code	Total Employment	Share	Rank	Average Monthly Wage	Average Monthly New Hire Earnings
11 Agriculture,Forestry,Fishing and Hunting	780	0.63%	18	$3,473	$2,525
21 Mining	486	0.39%	19	$6,710	$4,345
22 Utilities	973	0.79%	15	$7,363	$3,129
23 Construction	4,417	3.58%	8	$4,423	$3,828
31-33 Manufacturing	27,507	22.3%	1	$4,917	$3,205
42 Wholesale Trade	3,706	3.0%	10	$4,895	$3,686
44-45 Retail Trade	15,327	12.4%	3	$2,627	$1,575
48-49 Transportation and Warehousing	3,923	3.2%	9	$3,759	$2,823
51 Information	878	0.7%	17	$4,393	$2,772
52 Finance and Insurance	2,536	2.1%	11	$4,959	$2,776
53 Real Estate and Rental and Leasing	1,044	0.8%	14	$3,333	$2,385
54 Professional,Scientific,and Technical Services	2,508	2.0%	12	$4,131	$3,203
55 Management of Companies and Enterprises	438	0.4%	20	$3,261	$1,826
56 Administrative and Support and Waste Management and Remediation Services	8,450	6.8%	6	$2,811	$1,930
61 Educational Services	11,857	9.6%	4	$3,448	$1,407
62 Health Care and Social Assistance	18,400	14.9%	2	$3,526	$2,310
71 Arts,Entertainment,and Recreation	930	0.8%	16	$1,975	$1,363
72 Accommodation and Food Services	11,380	9.2%	5	$1,598	$1,059
81 Other Services (except Public Administration)	2,187	1.8%	13	$3,186	$2,229
92 Public Administration	5,708	4.62%	7	$3,086	$2,301
ALL INDUSTRIES	**123,435**	**100.00%**		**$3,696**	**$2,216**

Note: Rounding errors may be present.
Source: Alabama Department of Labor and U.S. Census Bureau.

Figure 2.7 East AlabamaWorks Employment Distribution (First Quarter 2020)

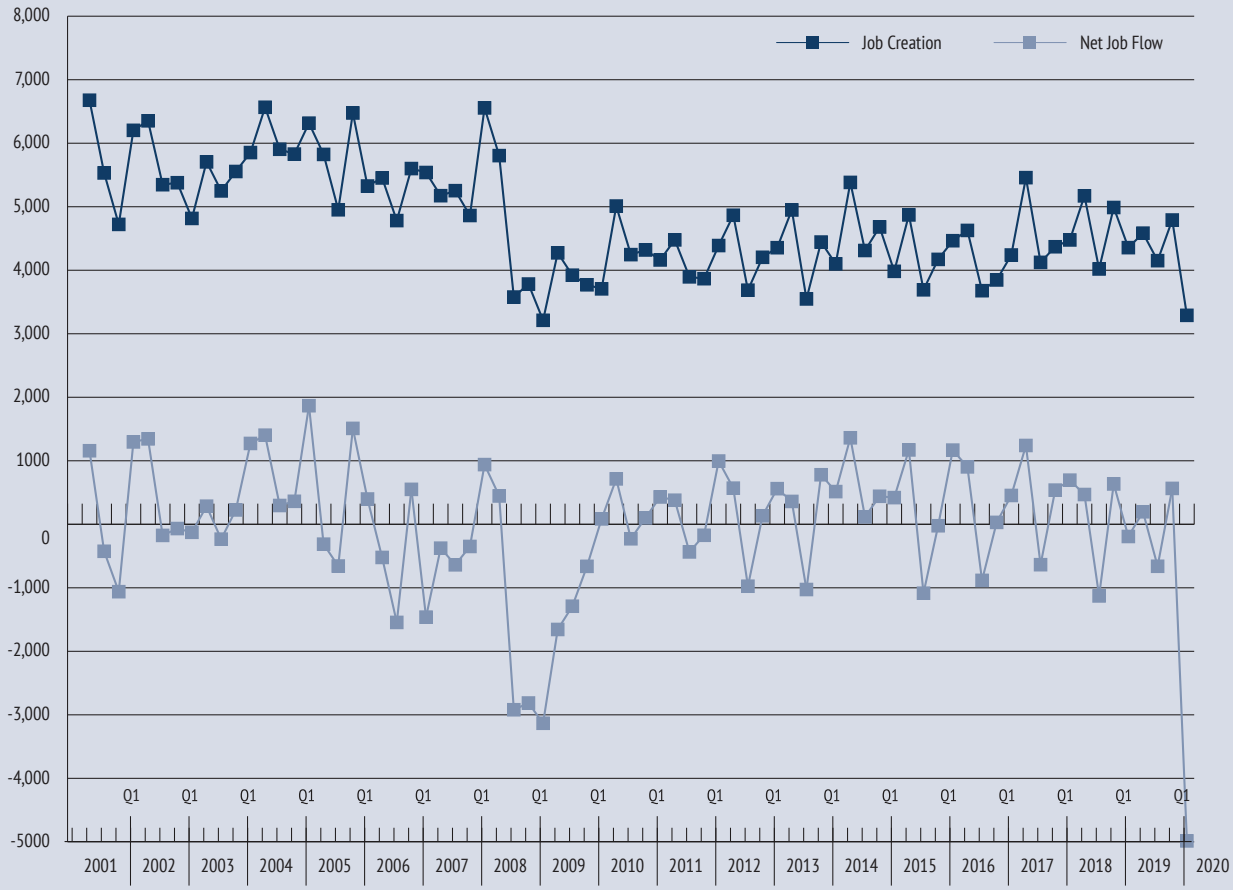


Source: Alabama Department of Labor and U.S. Census Bureau.

Job Creation and Net Job Flows

On average, 4,791 jobs were created per quarter from second quarter 2001 to first quarter 2020 while quarterly net job flows averaged negative 46 (Figure 2.8) as COVID-19 led to massive job separations in the first quarter of 2020. Both job creation and net flows declined significantly in the last quarter after fluctuating since the first quarter of the 2010 with no significant growth. Quarterly net job flows ranged from a loss of 4,985 in the first quarter of 2020 to a gain of 1,867 in the first quarter of 2005. Job creation refers to the number of new jobs that are created either by new area businesses or through the expansion of existing firms. Net job flows reflect the difference between current and previous employment at all businesses.

Figure 2.8 East AlabamaWorks Job Creation and Net Job Flows



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

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

Workforce Development East AlabamaWorks has 713 single occupations. Table 2.9 shows the top 40 occupations that are expected to be in high-demand, ranked by projected average annual job openings over the 2018 to 2028 period. Many of these occupations are in two of the top five largest employment sectors identified earlier in Table 2.8: manufacturing and health care and social assistance. Thus, these sectors will continue being important employers in the region.

The top five high-demand occupations are Assemblers and Fabricators, All Other, Including Team Assemblers; Combined Food Preparation and Serving Workers, Including Fast Food; Retail Salespersons; Helpers--Production Workers; and Laborers and Freight, Stock, and Material Movers, Hand. Eight of the high-demand occupations are also fast-growing. This means that these eight occupations have a minimum annual growth rate of 1.55 percent, which is much faster than the regional and state occupational growth rates of 0.26 percent and 0.48 percent, respectively.

The 20 fastest growing occupations ranked by projected growth of employment are listed in Table 2.10. Almost half of these occupations are healthcare related and the remainder are related to manufacturing and professional services. The top five fast-growing occupations are Occupational Therapy Assistants; Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic; Floor Layers, Except Carpet, Wood, and Hard Tiles; Speech-Language Pathologists; and Physical Therapist Assistants.

Table 2.11 shows the 50 selected highest earning occupations in the region. These occupations are mainly in management, healthcare, postsecondary education, and engineering fields and have a minimum annual mean salary of $80,585 for Instructional Coordinators and a maximum of $273,611 for Family and General Practitioners. Eight of the top 10 listed high-earning occupations are health-related and remainder are in management and computer science. Any discussion of earnings must consider that wages vary with experience. Occupations with the highest average wages may not necessarily have the highest entry level wages. The selected high-earning occupations are generally not fast-growing or in high-demand. Only three occupations are in all three categories. Four occupations are both fast-growing and high-earning (Table 2.9, Table 2.10, and Table 2.11) and six occupations are both high- demand and in high-earning (Table 2.9 and Table 2.11).

Of the region's 713 occupations, 143 are expected to decline over the 2018 to 2028 period. Twenty occupations are expected to drop by a minimum of 10 jobs (for those with disclosed net changes) and at least five percent (Table 2.12). No efforts should be made to sustain these occupations because they are declining as a result of structural changes in the economy of the region.

Table 2.9 Selected High-Demand Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Average Annual Job Openings		
	Total	Due to Growth	Due to Separations
Assemblers and Fabricators, All Other, Including Team Assemblers	820	15	805
Combined Food Preparation and Serving Workers, Including Fast Food	805	30	775
Retail Salespersons	580	15	565
Helpers--Production Workers	545	45	500
Laborers and Freight, Stock, and Material Movers, Hand	325	5	320
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	295	10	290
Heavy and Tractor-Trailer Truck Drivers	250	5	245
Nursing Assistants	210	10	205
First-Line Supervisors of Retail Sales Workers	205	5	200
Stock Clerks and Order Fillers	200	5	195
First-Line Supervisors of Production and Operating Workers	190	20	175
Registered Nurses	190	20	170
Personal Care Aides*	185	20	160
General and Operations Managers	**150**	**10**	**140**
Cooks, Restaurant	145	10	135
Landscaping and Groundskeeping Workers	140	5	135
Light Truck or Delivery Services Drivers	140	5	140
Elementary School Teachers, Except Special Education	135	5	130
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	125	5	120
Construction Laborers	115	5	115
Medical Assistants	110	10	100
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	105	5	100
Industrial Machinery Mechanics	100	10	90
Industrial Truck and Tractor Operators	95	5	90
Secondary School Teachers, Except Special and Career/Technical Education	95	5	90
Welders, Cutters, Solderers, and Brazers	85	5	80
Licensed Practical and Licensed Vocational Nurses	80	5	75
Accountants and Auditors	70	5	65
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	65	5	60
Machinists	65	5	60
Home Health Aides*	55	10	50
Medical Secretaries	55	5	50
Industrial Engineers*	**45**	**10**	**35**
Mechanical Engineers*	30	5	25
Taxi Drivers and Chauffeurs*	25	5	20
Nurse Practitioners*	**25**	**5**	**15**
Industrial Production Managers	**25**	**5**	**20**
Market Research Analysts and Marketing Specialists*	25	5	20
Financial Managers*	**20**	**5**	**15**
Physical Therapists	**10**	**5**	**10**

Table 2.10 Selected Fast-Growing Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Employment		Percent Change	Annual Growth (Percent)
	2018	2028		
Occupational Therapy Assistants	NA	NA	35	3.08
Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	70	100	34	2.95
Floor Layers, Except Carpet, Wood, and Hard Tiles	NA	NA	29	2.54
Speech-Language Pathologists	120	150	26	2.35
Physical Therapist Assistants	130	150	23	2.11
Fiberglass Laminators and Fabricators	NA	NA	23	2.09
Taxi Drivers and Chauffeurs*	160	200	23	2.07
Nurse Practitioners*	**300**	**370**	**22**	**1.98**
Electrical and Electronics Installers and Repairers, Transportation Equipment	NA	NA	22	1.97
Home Health Aides*	390	470	21	1.90
Industrial Engineers*	**470**	**570**	**21**	**1.89**
Software Developers, Applications	**40**	**50**	**20**	**1.88**
Personal Care Aides*	1,060	1,260	20	1.81
Mechanical Engineers*	350	410	19	1.74
Financial Managers*	**200**	**240**	**18**	**1.67**
Market Research Analysts and Marketing Specialists*	180	220	17	1.62
Respiratory Therapists	160	190	17	1.57
Marriage and Family Therapists	NA	NA	17	1.55
Physical Therapist Aides	70	80	17	1.55
Purchasing Managers	60	70	17	1.55

Note: Employment data are rounded to the nearest 10 and job openings 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 2.11 Selected High-Earning Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Employment		Annual Growth (Percent)	Average Annual Job Openings	Mean Annual Salary ($)
	2018	2028			
Family and General Practitioners	50	50	-0.19	0	273,611
Surgeons	NA	NA	-0.62	0	254,875
Physicians and Surgeons, All Other	290	300	0.14	10	239,450
Chief Executives	150	140	-0.88	10	169,687
Nurse Anesthetists	NA	NA	1.29	5	162,942
Dentists, General	80	80	-0.13	5	150,425
Pharmacists	290	280	-0.32	10	135,775
Optometrists	NA	NA	0.50	0	131,255
Computer Network Architects	NA	NA	-1.42	0	130,463
Physician Assistants	20	20	1.73	0	124,198
Sales Managers	130	140	0.59	15	115,954

Table 2.11 Selected High-Earning Occupations (Base Year 2018 and Projected Year 2028) continued

Electrical Engineers	80	80	0.13	5	113,553
Architectural and Engineering Managers	50	50	0.65	5	111,727
Information Security Analysts	NA	NA	1.96	0	109,967
Nurse Practitioners*	**300**	**370**	**1.98**	**25**	**108,664**
Business Teachers, Postsecondary	NA	NA	1.47	5	108,590
Construction Managers	270	280	0.55	20	105,887
Personal Financial Advisors	90	100	0.11	5	105,703
Physical Therapists*	180	210	1.46	10	104,990
Chemical Engineers	NA	NA	1.06	0	104,698
General and Operations Managers*	1,580	1,670	0.59	150	104,661
Financial Managers*	**200**	**240**	**1.67**	**20**	**104,489**
Industrial Production Managers*	270	300	1.21	25	103,539
Electronics Engineers, Except Computer	40	40	-0.70	5	95,729
Human Resources Managers	50	50	1.04	5	94,933
Occupational Therapists	90	100	1.18	5	93,682
Lawyers	230	240	0.30	10	93,484
Administrative Services Managers	NA	NA	0.00	0	91,357
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	70	70	0.14	5	91,267
Education Administrators, All Other	50	60	0.36	5	90,342
Computer and Information Systems Managers	50	50	0.39	5	90,230
Software Developers, Applications	**40**	**50**	**1.88**	**5**	**88,391**
Software Developers, Systems Software	40	40	-0.80	0	88,391
Transportation, Storage, and Distribution Managers	50	50	0.62	5	88,325
Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	20	20	0.87	0	87,911
Education Administrators, Postsecondary	110	120	0.44	10	87,657
Medical and Health Services Managers	230	250	0.87	20	87,417
Chemistry Teachers, Postsecondary	NA	NA	0.35	0	85,454
Funeral Service Managers	40	40	0.50	5	85,427
Chemists	NA	NA	0.51	0	85,186
Mathematical Science Teachers, Postsecondary	NA	NA	0.60	5	85,148
Industrial Engineers*	**470**	**570**	**1.89**	**45**	**84,906**
Veterinarians	60	60	1.02	5	84,743
Engineers, All Other	40	40	0.25	5	84,643
Marketing Managers	20	20	0.00	0	84,295
Environmental Engineers	40	40	0.00	5	83,595
Postmasters and Mail Superintendents	20	20	-1.46	0	82,022
History Teachers, Postsecondary	30	30	0.33	0	81,483
Education Administrators, Elementary and Secondary School	320	330	0.34	25	80,921
Instructional Coordinators	100	110	0.39	10	80,585

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 2019 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 limitations.
Source: Center for Business and Economic Research, The University of Alabama and Alabama Department of Labor.

Table 2.12 Selected Sharp-Declining Occupations (Base Year 2018 and Projected Year 2028)

Occupation	Employment		Net Change	Percent Change
	2018	2028		
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	2,970	2,680	-290	-9.63
Inspectors, Testers, Sorters, Samplers, and Weighers	1,470	1,280	-190	-12.93
Office Clerks, General	2,010	1,880	-130	-6.28
Waiters and Waitresses	2,180	2,080	-100	-4.59
Customer Service Representatives	1,530	1,440	-90	-6.01
Sewing Machine Operators	580	500	-80	-13.32
Cooks, Fast Food	400	330	-70	-18.05
Bookkeeping, Accounting, and Auditing Clerks	1,510	1,440	-70	-5.03
Tellers	780	740	-40	-5.99
Legal Secretaries	220	180	-40	-17.43
Executive Secretaries and Executive Administrative Assistants	130	100	-30	-20.00
Textile Knitting and Weaving Machine Setters, Operators, and Tenders	140	110	-30	-19.85
Data Entry Keyers	60	40	-20	-25.45
Structural Metal Fabricators and Fitters	130	110	-20	-14.29
Medical Transcriptionists	40	30	-10	-25.71
Computer Operators	30	20	-10	-29.63
Grinding and Polishing Workers, Hand	70	60	-10	-19.44
Reporters and Correspondents	NA	NA	NA	-28.57
Switchboard Operators, Including Answering Service	NA	NA	NA	-23.42
Couriers and Messengers	NA	NA	NA	-17.99

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 2.13 shows skill types and definitions as provided by O*NET Online, which offers skill sets for all occupations ranked by degree of importance. High-earning occupations typically require skills that are obtained in the pursuit of the high educational attainment levels 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 2.14 shows the percentage of selected occupations in the region 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 2.13 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.

High-earning occupations require more active learning, critical thinking, learning strategies, reading comprehension, science, speaking, writing, complex problem solving, financial resources management, management of personnel resources, negotiation, and judgment and decision making skills than both high-demand and fast-growing jobs. Many of these skills require long training periods and postsecondary education. However, high-earning jobs require fewer technical and social skills. High-demand occupations require more resource management skills than fast-growing occupations but less basic, complex problem solving, and systems skills.

Table 2.15 shows skill gap indexes for all 35 skills listed in Table 2.14 based on 2018 to 2028 occupational projections. Skills gap indexes range up to 100 and are standardized measures of the gap between current supply and projected demand. The index does not provide any information about current or base year skill supply. Its

Table 2.13 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 2.14 Percentage of Selected Occupations for Which Skill Is Primary

	Selected High-Demand Occupations	Selected Fast-Growing Occupations	Selected High-Earning Occupations
Basic Skills			
Active Learning	23	50	60
Active Listening	75	90	86
Critical Thinking	65	75	80
Learning Strategies	5	5	12
Mathematics	8	20	14
Monitoring	63	70	58
Reading Comprehension	53	80	86
Science	5	15	16
Speaking	70	80	86
Writing	23	35	54
Complex Problem Solving Skills			
Complex Problem Solving	20	55	64
Resource Management Skills			
Management of Financial Resources	0	0	2
Management of Material Resources	0	0	0
Management of Personnel Resources	8	0	16
Time Management	35	30	24
Social Skills			
Coordination	45	25	34
Instructing	13	10	12
Negotiation	10	5	16
Persuasion	8	10	10
Service Orientation	33	35	22
Social Perceptiveness	48	55	40
Systems Skills			
Judgment and Decision Making	25	50	60
Systems Analysis	3	15	12
Systems Evaluation	3	10	6
Technical Skills			
Equipment Maintenance	5	5	0
Equipment Selection	3	0	0
Installation	0	0	0
Operation and Control	23	5	0
Operation Monitoring	18	20	0
Operations Analysis	3	10	6
Programming	0	10	2
Quality Control Analysis	10	5	2
Repairing	3	5	0
Technology Design	0	0	0
Troubleshooting	8	0	0

Note: Rounding errors may be present.
Source: O*NET Online and Center for Business and Economic Research, The University of Alabama

Table 2.15 Skills Gap Indexes (Base Year 2018 and Projected Year 2028)

Skill	Skill Type	Total Openings (Projected Demand)	Skills Gap Index	Replacement Index
Active Listening	Basic	12,055	71	97
Speaking	Basic	11,925	70	97
Monitoring	Basic	10,485	61	96
Critical Thinking	Basic	9,400	55	96
Coordination	Social	9,035	53	96
Social Perceptiveness	Social	9,005	53	97
Service Orientation	Social	8,985	53	97
Time Management	Resource	8,145	48	96
Reading Comprehension	Basic	8,110	48	97
Judgment and Decision Making	Systems	5,970	35	94
Writing	Basic	5,755	34	96
Active Learning	Basic	5,405	32	94
Complex Problem Solving	Complex	4,975	29	94
Persuasion	Social	3,950	23	95
Instructing	Social	3,630	22	93
Negotiation	Social	3,320	20	95
Operation Monitoring	Technical	3,275	20	97
Learning Strategies	Basic	3,170	19	94
Operation and Control	Technical	2,925	17	96
Quality Control Analysis	Technical	2,520	15	96
Systems Analysis	Systems	2,240	14	93
Systems Evaluation	Systems	2,150	13	92
Mathematics	Basic	2,115	13	96
Management of Personnel Resources	Resource	2,040	12	95
Troubleshooting	Technical	1,705	10	96
Equipment Maintenance	Technical	1,165	7	95
Repairing	Technical	830	5	96
Equipment Selection	Technical	610	4	97
Management of Financial Resources	Resource	545	4	94
Management of Material Resources	Resource	435	3	91
Operations Analysis	Technical	370	3	89
Installation	Technical	235	2	96
Science	Basic	165	1	67
Programming	Technical	45	1	100
Technology Design	Technical	45	1	89

Note: These are annualized skills indexes based on 2018 to 2028 occupation projections.
Source: Center for Business and Economic Research, The University of Alabama, Alabama Department of Labor, and O*Net Online

focus is 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 specified 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 growth, which in turn implies a need to increase the pace of skill training. Skill gap indexes point to 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, complex problem solving, systems, resource management, and technical skills. The importance of basic skills generally and for high-demand, high-growth, and high-earning jobs in particular indicates a strong need for training in these skills. The scale of training needs to increase for basic and social skills; the pace of training should be raised for technical, resource management, and systems skills.

Education and Training Issues

Educational attainment in East AlabamaWorks is low compared to the state as a whole. About 83 percent of residents age 25 and over have graduated from high school, compared to 86 percent for Alabama. In the region, about 17 percent of people have a bachelor's or higher degree versus 26 percent for the state. Skill and education requirements for jobs keep rising. This highlights a very strong need to raise educational attainment in the entire region.

Table 2.16 shows the number of selected occupations in the region for which a particular education/training category is most common. In general, high-earning occupations require high educational attainment levels. Only three of the top 50 high-earning occupations do not require a bachelor's or higher degree. Twelve (30.0 percent) of the top 40 high-demand occupations require a bachelor's or higher degree. Twelve (60.0 percent) of the top 20 fast-growing occupations require an associate degree or higher degree at the minimum and nine (45.0 percent) require a bachelor's degree or higher.

The 2018 to 2028 occupational projections indicate that future jobs will require postsecondary education and training at a minimum. Current job ads are requiring at least more than a high school diploma or GED. Of the region's 713 occupations, 143 are expected to decline over the period and education and training for these should slow accordingly.

Table 2.16 Number of Selected Occupations by Education/Training Requirement

Most Common Education/Training Requirements Categories	Selected High-Demand Occupations	Selected Fast-Growing Occupations	Selected High-Earning Occupations
Doctoral Degree or First Professional Degree	1	0	13
Master's Degree	1	3	7
Bachelor's Degree	10	6	27
Associate Degree	0	3	1
Postsecondary Non-Degree	4	2	0
Some College, no Degree	0	0	0
High School Diploma or Equivalent	15	4	2
No Formal Educational Credential	9	2	0

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

IMPLICATIONS AND RECOMMENDATIONS

From a 2018 base, worker shortfalls of about 21,600 and 29,900 are expected for 2028 and 2030, respectively (Table 2.17). The worker shortfall is expected to rise to about 50,000 in 2040. The main cause of the shortfalls is the expected decline of the region's major working age population, those ages 20-64. A focus on both worker skills and the expected shortfall must be prioritized through 2040.

Employment is critical to economic development, so strategies that address potential skill needs and worker shortfalls must be adopted and implemented. Such strategies should aim at increasing labor force participation, encouraging in-migration, and raising worker productivity. The strategies must include: (1) improving education and its funding; (2) continuing and enhancing programs to assess, retrain, and place dislocated workers; (3) focusing on hard-to-serve populations (e.g., out-of-school youth); (4) lowering the high school dropout rate; (5) using economic opportunities to attract new and younger residents; (6) facilitating in-commuting; and (7) encouraging older worker participation in the labor force.

Improving education is vital because a highly educated and productive workforce is a critical economic development asset. The educational and training requirements of fast-growing and high-earning occupations show the significance of education in developing the workforce of the future. The importance of basic skills generally and for high-demand, high-growth, and high-earning jobs in particular demonstrates a strong need for training in these skills. The scale of training needs to increase for basic and social skills; the pace of training should be raised for technical, resource management, and systems 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 2.12 should slow accordingly.

Another very important reason to improve education is that more educated people are more likely to work. 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 educational and other 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 for 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 be continued and enhanced because they can improve the labor force participation rate. Hard-to-serve populations include persons in poverty, those receiving welfare, those in 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, 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 region's total population and the prime working age (20-64) population is declining. This may hinder the ability to meet the expected job demand barring future economic slowdowns. Higher employment demand could be partially served by in-commuting. However,

Table 4.17 Expected Worker Shortfall

	2018-2028	2018-2030	2018-2035	2018-2040
Total population growth (percent)	-1.2	-1.5	-2.1	-2.7
Age 20-64 growth (percent)	-6.1	-7.0	-8.4	-8.5
Job growth (percent)	9.8	15.0	20.4	28.3
Worker shortfall (percent)	15.9	22.0	28.8	36.7
Worker shortfall (number)	21,587	29,916	39,218	49,951

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

new residents can be attracted using higher-paying job opportunities from economic development successes. Investment in amenities and infrastructure may be needed to support such growth. In-migration is generally more beneficial 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 can help meet the region's workforce challenges. Such policies can be related to income taxation, job flexibility, and retirement programs. As the share of older people in the population is projected to increase, 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 which (i) gradually raised the normal 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 region's economy will strengthen it. This demands that economic development 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 region and provide additional local (county and city) tax revenue. Raising personal income by improving educational attainment and technological skills for a region 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 East AlabamaWorks economy. Indeed, we cannot achieve success in one without the other.

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