

State of the Workforce Report III: Alabama

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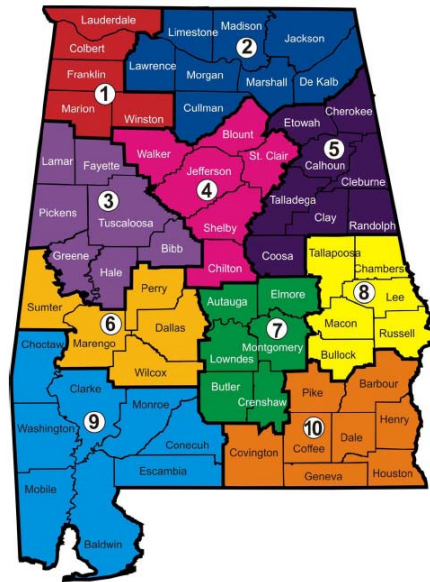


September 2008

Center for Business and Economic Research
University Center for Economic Development
Institute for Social Science Research

THE UNIVERSITY OF ALABAMA

State of the Workforce Report III: Alabama



September 2008

by

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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 a low 4.2 percent unemployment rate in May 2008, with 91,804 unemployed. However, the state has a large 600,800-strong available labor pool that includes 509,000 underemployed workers who are looking for better jobs. The underemployed are willing to commute farther and longer, some for 20 or more minutes longer and 20 or more extra miles.
- Congestion, which slows economic development, is rising. More people are traveling to work and both commute time and distance rose in 2008 from 2006. This implies that continuous maintenance and development of transportation infrastructure and systems is important.
- By sector, the top five employers in the state are manufacturing, retail trade, health care and social assistance, educational services, and accommodation and food services. These five industries provided 1,091,177 jobs, 57.5 percent of the state total, in the second quarter of 2007. These leading employers are not the highest paying sectors; only manufacturing had wages that were above the state averages for new hires and incumbent workers. Economic development should therefore aim to diversify and strengthen the state's economy by retaining, expanding, and attracting more high-wage providing industries. Workforce development should also focus on preparing workers for these industries.
- On average about 95,850 jobs were created per quarter from second quarter 2001 to second quarter 2007; quarterly net job flows averaged about 9,260. 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 Registered Nurses; Team Assemblers; Customer Service Representatives; Elementary School Teachers, Except Special Education; and Home Health Aides.
- The top five fast-growing occupations are Rail Car Repairers; Network Systems and Data Communications Analysts; Veterinary Technologists and Technicians; Medical Assistants; and Home Health Aides.
- The top 50 high-earning occupations are in health, legal, management, engineering, computer, postsecondary education, and science fields and have a minimum salary of \$75,890. Nine of the top 10 are health occupations.
- Of the top 40 high-demand, the top 40 fast-growing, and 50 high-earning occupations, four belong to all three categories: Management Analysts; Computer Software Engineers, Systems Software; Personal Financial Advisors; and Biological Science Teachers, Postsecondary. Nine occupations are both high-demand and high-earning. Twenty-five occupations are both high-demand and fast-growing.

- Of the state’s 901 occupations and occupational categories, 112 are expected to decline over the 2006 to 2016 period. Twenty-five occupations are expected to sharply decline by at least 12 percent, with each losing a minimum of 100 jobs. Education and training for these 25 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 postsecondary education and training at a minimum.
- The importance of basic skills generally and for high-demand, high-growth, and high-earning jobs indicates a strong need for training in these skills. The pace of training needs to increase for technical and systems skills, while the scale of training is 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 of 141,000 and 406,000 are estimated by 2016 and 2025, respectively, due to strong economic output growth combined with low labor force and population growth rates, low labor force participation, and low educational attainment in the state. Strategies to address these shortfalls should aim at increasing labor force participation, encouraging in-migration, and raising worker productivity. Such strategies might include:
 1. Improving education and education 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. Using economic opportunities to attract new residents
 5. Facilitating in-commuting
 6. Encouraging older worker participation
- Improving education is important because (i) a highly educated and productive workforce is a critical economic development asset, (ii) productivity rises with education, (iii) more 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 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 for 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 and also promote 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. Together, workforce development and economic development can build a strong, well-diversified Alabama economy. Indeed, one cannot achieve success without the other.

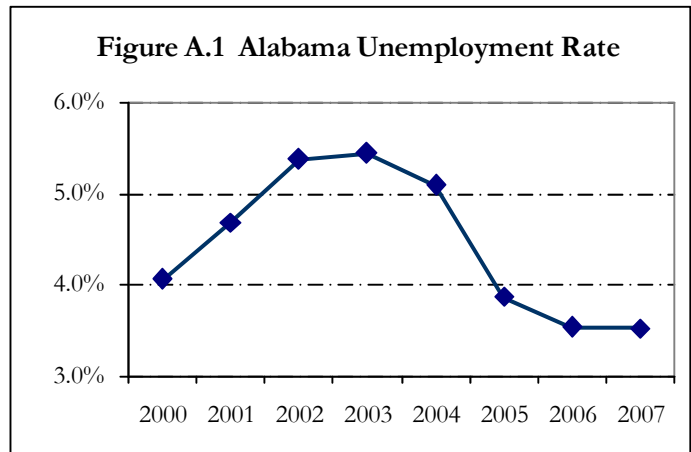
Workforce Supply

Labor Force Activity

The labor force includes all persons in the civilian noninstitutional population who are age 16 and over and 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, and the disabled). Table A.1 shows labor force information for Alabama and each Workforce Development Region (WDR) in the state for 2007 and for May 2008.¹

A slowing state economy in 2008 and rising numbers of unemployed are raising unemployment rates for the state and all WDRs. Unemployment rates in 2007 ranged between 3.0 percent and 6.8 percent for the WDRs, with a 3.5 percent annual average for the state. The May 2008 range for unemployment was 3.5 percent to 8.0 percent, with a 4.2 percent rate for the state. Unemployment was lowest in WDR 2 and highest in Region 6. The six-county Region 4 had the largest labor force and an unemployment rate of 3.7 percent. WDR 6 had both the smallest labor force and the highest unemployment rate among the regions.

Annual state unemployment rates for 2000 to 2007 are shown in Figure A.1. Unemployment stood at 4.1 percent in 2000 when the labor market statewide and nationwide was tight. The higher 2001 to 2003 rates reflect the effects of the national economic recession of 2001. Employment gains since 2003 resulting from the state's successful economic development efforts brought the unemployment down. A 29,400-job gain for 2007 followed a 10,000-job increase in 2006 for the state. Year-to-date monthly labor force data point to a higher state unemployment rate for 2008 than the 3.7 percent seen in 2007.



Source: Alabama Department of Industrial Relations.

Nonagricultural employment of Alabama residents in the state averaged a little over 1.8 million quarterly from the second quarter of 2001 to the third quarter of 2007 (Figure A.2). The low point was recorded in the first quarter of 2002, but this employment of Alabama residents has recovered steadily to about 1.9 million in the second and third quarters of 2007. Total employment of Alabama residents was about 2,103,300 in May 2008 (Table A.1), with some residents commuting to jobs outside the state. Economic activity is spurring employment growth and this is expected to continue.

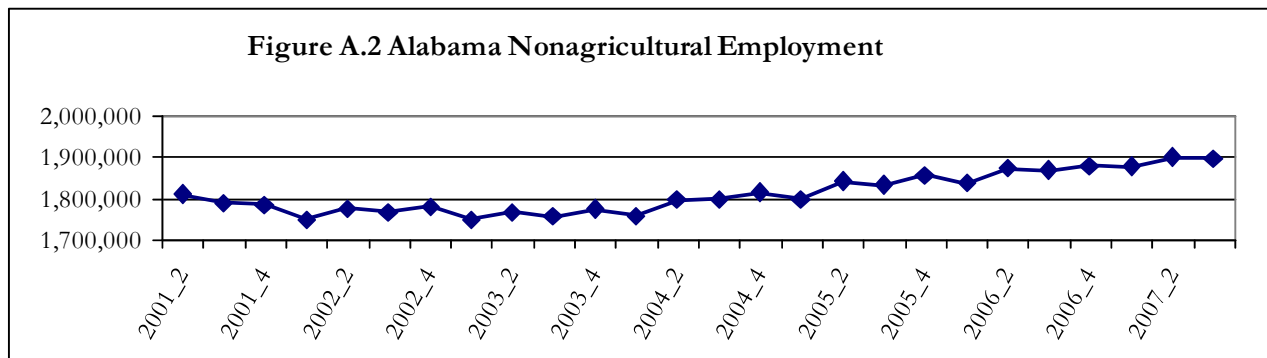
¹ Alabama labor force information is available from the Labor Market Information (LMI) Division of the Alabama Department of Industrial Relations. LMI compiles labor data in cooperation with the U.S. Bureau of Labor Statistics.

Table A.1 Alabama Labor Force Information

	2007			
	Labor Force	Employed	Unemployed	Rate (%)
Workforce Development Region 1	105,795	101,403	4,392	4.2
Workforce Development Region 2	414,048	401,457	12,591	3.0
Workforce Development Region 3	129,676	125,303	4,373	3.4
Workforce Development Region 4	528,507	511,858	16,649	3.2
Workforce Development Region 5	178,255	171,100	7,155	4.0
Workforce Development Region 6	35,473	33,075	2,398	6.8
Workforce Development Region 7	187,407	180,703	6,704	3.6
Workforce Development Region 8	133,507	127,760	5,747	4.3
Workforce Development Region 9	318,775	307,218	11,557	3.6
Workforce Development Region 10	151,341	146,076	5,265	3.5
Jefferson Region	317,707	306,928	10,779	3.4
Mobile Region	184,696	178,109	6,587	3.6
Alabama	2,182,779	2,105,951	76,828	3.5
U.S.	153,124,000	146,047,000	7,078,000	4.6

	May 2008			
	Labor Force	Employed	Unemployed	Rate (%)
Workforce Development Region 1	106,307	101,254	5,053	4.8
Workforce Development Region 2	418,014	403,390	14,624	3.5
Workforce Development Region 3	130,423	124,950	5,473	4.2
Workforce Development Region 4	529,507	509,939	19,568	3.7
Workforce Development Region 5	178,034	169,974	8,060	4.5
Workforce Development Region 6	35,057	32,256	2,801	8.0
Workforce Development Region 7	189,581	181,279	8,302	4.4
Workforce Development Region 8	135,052	127,311	7,741	5.7
Workforce Development Region 9	322,191	308,118	14,073	4.4
Workforce Development Region 10	150,999	144,803	6,196	4.1
Jefferson Region	318,434	305,777	12,657	4.0
Mobile Region	186,473	178,667	7,806	4.2
Alabama	2,195,093	2,103,289	91,804	4.2
U.S.	154,003,000	145,926,000	8,076,000	5.2

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



Source: Alabama Department of Industrial Relations and U.S. Census Bureau.

Table A.2 shows worker distribution by age in Alabama for the second quarter of 2007. Older workers, age 45 and over, are a very significant part of the state's nonagricultural employment (39.3 percent). The share of older workers for the WDRs ranges from 37.9 percent for Region 8 to 43.7 percent for Region 6. To meet future occupational projections for growth and replacement, labor force participation of younger residents must increase. Otherwise older workers may be required to work longer.

Table A.2 Workers by Age Group Q2 2007

	Nonagricultural Employment	
	Number	Percent
19-24	230,782	12.2
25-34	419,234	22.1
35-44	445,184	23.4
45-54	433,718	22.8
55-64	244,628	12.9
65+	67,119	3.5
45 and over total	745,465	39.3
Total all ages	1,899,219	100.0

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

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

Commuting Patterns

In 2000 more Alabamians commuted out of the state for work than nonresidents who commuted in (Table A.3). Commuter outflow exceeded inflow by about 36,700 people. Most of the commuting involved Alabama's four neighboring states: Florida, Georgia, Mississippi, and Tennessee. Together these states accounted for 85 percent, or about 35,000, of the inflow and 86 percent (67,000) of the outflow. About 1,000 of those who commuted out went to other countries. There was significant commuting inside the state as well. Recent commuting data for 2004 shows a balance between in- and out-commuting. The level of in-commuting nearly doubled, while out-commuting increased slightly. Georgia alone provided jobs for half of out-commuters in both years.

Table A.3 Commuting Patterns

Year	Inflow			Outflow	
	Number	Percent		Number	Percent
2000	41,494	100		78,197	100
2004	81,030	100		79,436	*
			Percent of workers		
Average commute time (one-way)			2004	2005/2006	2008
Less than 20 minutes			57.3	55.2	54.9
20 to 40 minutes			27.0	29.1	29.6
40 minutes to an hour			9.3	9.3	9.4
More than an hour			1.7	2.3	2.9
Average commute distance (one-way)			2004	2005/2006	2008
Less than 10 miles			45.9	46.5	46.0
10 to 25 miles			29.5	30.6	32.4
25 to 45 miles			13.7	13.4	13.5
More than 45 miles			6.1	4.5	6.3

Note: Rounding errors may be present. * Commute outflow number represents slightly less than 100 percent and shows flows to nine states: AR, FL, GA, KY, LA, MS, NC, SC, and TN.

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

Table A.3 also shows the one-way average commute time and distance for Alabama workers in various years. More people are traveling to work and both commute time and distance are up in 2008. This indicates that congestion is rising in the state and suggests that transportation infrastructure and systems must be maintained and developed properly to ensure that the flow of goods and movement of workers are not interrupted. Impeding the mobility of workers and goods can delay or slow economic development.

Population

The Alabama population estimate of 4.63 million for 2007 is 4.1 percent more than was recorded for 2000 (Figure A.3 and Table A.4). Population grew faster for four WDRs than for the state, but population also shrank in two regions. The state's population is projected to grow 8.8 percent in this decade to more than 4.8 million by 2010. Population growth in five WDRs should beat the state's rate. Region 6 is expected to see its population fall, which might shrink its labor force.

If employment growth continues to outpace labor force growth in the medium to long term, communities that experience rapid job gains may need to consider investments in amenities and infrastructure to attract new residents. Table A.5 shows population counts, estimates, and projections by age group. The population aged 65 and over will grow rapidly after 2010, with the first of the baby boom generation turning 65 in 2011. Consequently, growth of the prime working age group (20-64) and youth (0-19) will lag that of the total population. This poses a challenge for workforce development.

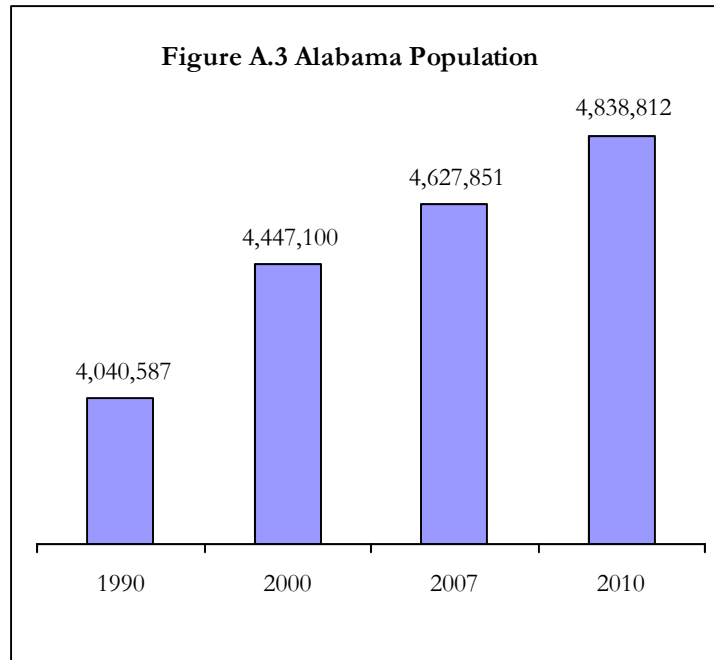


Table A.4 Population by Workforce Development Region

	1990 Census	2000 Census	2007 Estimate	% Change 2000-2007	2010 Projected	% Change 2000-2010
Workforce Development Region 1	211,024	230,230	227,408	-1.2	246,645	7.1
Workforce Development Region 2	665,495	766,335	825,155	7.7	859,812	12.2
Workforce Development Region 3	247,125	268,208	278,499	3.8	285,147	6.3
Workforce Development Region 4	940,268	1,031,412	1,086,675	5.4	1,129,258	9.5
Workforce Development Region 5	366,450	382,976	382,912	0.0	400,567	4.6
Workforce Development Region 6	113,715	108,746	101,042	-7.1	105,030	-3.4
Workforce Development Region 7	340,702	381,592	399,924	4.8	421,387	10.4
Workforce Development Region 8	245,678	278,725	289,327	3.8	308,517	10.7
Workforce Development Region 9	610,415	678,997	707,594	4.2	744,356	9.6
Workforce Development Region 10	299,715	319,879	329,315	2.9	337,567	5.5
Jefferson Region	651,525	662,047	658,779	-0.5	673,771	1.8
Mobile Region	378,643	399,843	404,406	1.1	417,520	4.4
Alabama	4,040,587	4,447,100	4,627,851	4.1	4,838,812	8.8
U.S.	248,709,873	281,421,966	301,621,157	7.2	314,571,000	11.8

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

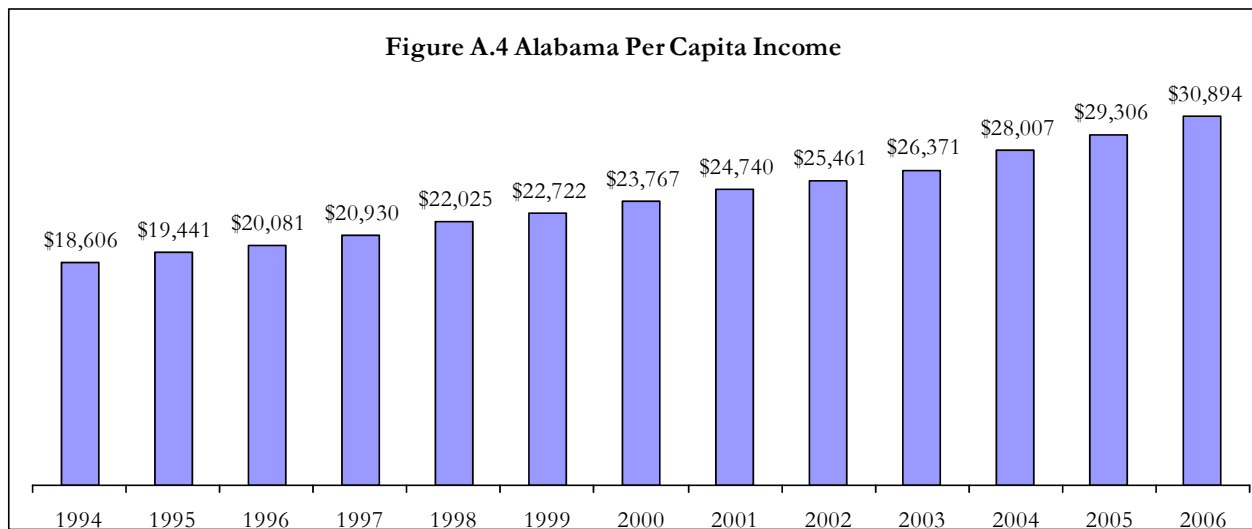
Table A.5 Alabama Population by Age Group, Census 2000 and Projections

Age Group	2000	2006	2016	2025
0-19	1,256,169	1,272,373	1,285,464	1,333,075
20-24	306,865	330,297	344,663	339,599
25-29	301,196	301,464	331,350	321,999
30-34	301,819	298,334	319,074	338,213
35-39	340,300	310,248	308,313	336,341
40-44	345,212	342,637	314,626	333,613
45-49	315,173	352,504	323,752	317,382
50-54	285,036	327,413	354,425	326,661
55-59	225,450	291,983	358,609	330,329
60-64	190,082	232,022	321,697	355,702
65+	579,798	624,090	802,709	1,053,083
20-64 Total	2,611,133	2,786,902	2,976,509	2,999,839
Total Population	4,447,100	4,683,365	5,064,682	5,385,997
<i>Change from 2006</i>				
0-19			1.0%	4.8%
20-64			6.8%	7.6%
Total Population			8.1%	15.0%

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

Per Capita Income

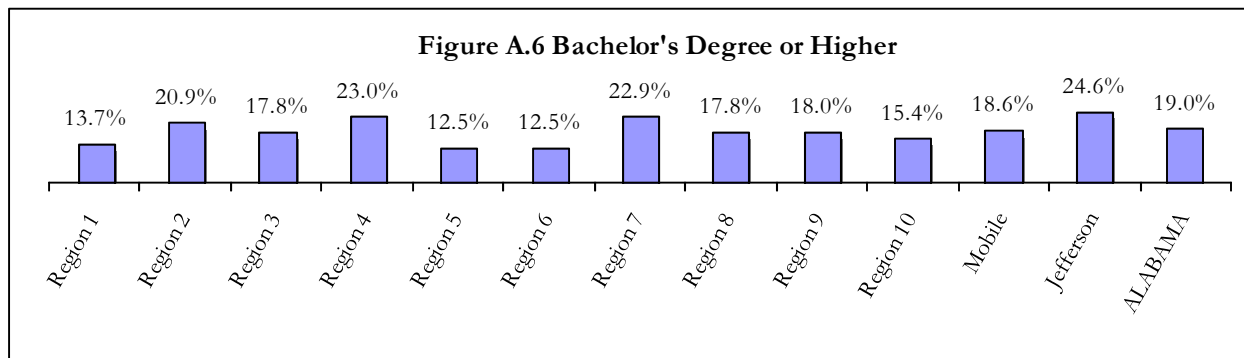
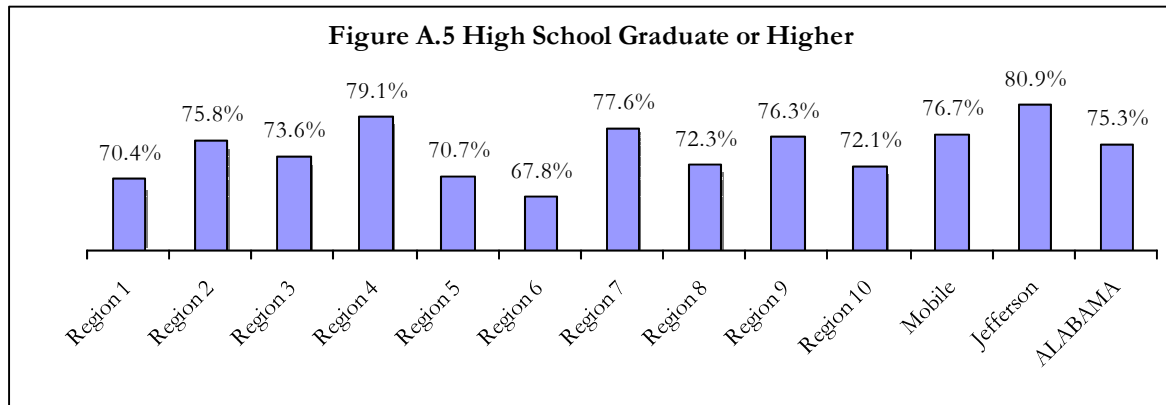
Per capita income (PCI) in Alabama was at \$30,894 in 2006 (Figure A.4), up 66 percent from 1994. WDR 4 had the highest PCI with \$37,627 followed by Region 7 with \$32,488 and Region 2 with \$31,121. All other regions had lower PCIs than the Alabama state average. At \$24,274, Region 6 had the lowest PCI.



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

Educational Attainment

Educational attainment in 2000 of Alabama residents who were 25 years old and over is shown in Figures A.5 and A.6 and Table A.6. About 75 percent graduated from high school and 19 percent held a bachelor's or higher degree. Region 4 has the highest educational attainment and Region 6 has the lowest. Educational attainment is important as skills rise with education and high-wage 21st century jobs demand more skill sets.



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 areas because of the various contributing factors combined with each area's economic, social, and geographic characteristics.

Table A.6 Educational Attainment in 2000, Population 25 Years and Over

	<u>Region 1</u>	<u>Region 2</u>	<u>Region 3</u>	<u>Region 4</u>	<u>Region 5</u>	<u>Region 6</u>	<u>Region 7</u>
Total	155,827	505,993	166,247	678,967	256,046	66,756	243,326
No schooling completed	1,967	5,155	2,727	6,935	3,224	1,630	2,931
Nursery to 4th grade	1,462	4,050	1,664	3,226	1,960	1,101	1,764
5th and 6th grade	4,382	11,461	3,606	11,308	6,240	2,214	4,103
7th and 8th grade	9,524	23,696	7,197	23,176	13,679	2,955	8,314
9th grade	7,873	20,662	6,669	21,358	12,885	2,853	7,985
10th grade	8,593	22,899	8,076	24,829	14,662	3,220	9,447
11th grade	6,614	18,772	6,892	23,889	12,179	3,394	9,382
12th grade, no diploma	5,725	15,555	7,131	27,398	10,151	4,107	10,594
High school graduate/equivalent	52,095	145,572	52,471	195,872	85,516	22,249	68,487
Some college, less than 1 year	9,904	34,438	9,939	43,521	16,117	3,730	16,590
Some college, 1+ years, no degree	19,455	69,585	21,692	103,590	34,159	7,770	35,797
Associate degree	6,928	28,645	8,589	37,407	13,266	3,201	12,120
Bachelor's degree	13,356	69,910	17,921	102,265	19,178	5,156	34,720
Master's degree	5,524	26,884	7,916	34,919	9,357	2,211	15,506
Professional school degree	1,616	5,246	1,909	13,919	2,490	746	3,879
Doctorate degree	809	3,463	1,848	5,355	983	219	1,707
	<u>Region 8</u>	<u>Region 9</u>	<u>Region 10</u>	<u>Mobile</u>	<u>Jefferson</u>	<u>Alabama</u>	
Total	168,672	435,761	209,805	250,122	434,158	2,887,400	
No schooling completed	2,388	5,324	3,493	3,033	4,227	35,774	
Nursery to 4th grade	1,740	2,948	2,309	1,564	1,708	22,224	
5th and 6th grade	4,408	6,912	5,435	3,279	5,904	60,069	
7th and 8th grade	7,314	15,748	10,663	8,846	12,461	122,266	
9th grade	6,774	14,679	8,973	7,988	11,360	110,711	
10th grade	8,707	18,509	9,861	10,421	13,932	128,803	
11th grade	7,691	18,485	9,311	10,826	14,635	116,609	
12th grade, no diploma	7,731	20,810	8,423	12,266	18,723	117,625	
High school graduate/equivalent	50,534	141,154	63,266	79,822	121,233	877,216	
Some college, less than 1 year	10,545	28,237	15,037	16,388	27,914	188,058	
Some college, 1+ years, no degree	21,632	61,438	27,879	35,788	70,628	402,997	
Associate degree	9,193	23,270	12,821	13,276	24,600	155,440	
Bachelor's degree	17,419	50,777	21,070	30,499	68,866	351,772	
Master's degree	8,184	18,966	8,262	10,782	23,560	137,729	
Professional school degree	1,862	5,876	2,284	3,586	10,532	39,827	
Doctorate degree	2,550	2,628	718	1,758	3,875	20,280	

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

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 WDRs with 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) 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), 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 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 Alabama underemployment rate was 24.2 percent in 2008. Applying this rate to May 2008 labor force data means that about 509,000 employed Alabama residents were underemployed (Table A.7). Adding the unemployed gives a total available labor pool of nearly 601,000 for the state. This is 6.5 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.

Table A.7 Underemployed and Available Labor by Workforce Development Region

	<u>Alabama</u>	<u>Region 1</u>	<u>Region 2</u>	<u>Region 3</u>	<u>Region 4</u>	<u>Region 5</u>	<u>Region 6</u>
Labor force	2,195,093	106,307	418,014	130,423	529,507	178,034	35,057
Employed	2,103,289	101,254	403,390	124,950	509,939	169,974	32,256
Underemployment rate	24.2%	20.1%	24.6%	23.0%	20.3%	27.9%	27.7%
Underemployed workers	508,996	20,352	99,234	28,739	103,518	47,423	8,935
Unemployed	91,804	5,053	14,624	5,473	19,568	8,060	2,801
Available labor pool	600,800	25,405	113,858	34,212	123,086	55,483	11,736
	<u>Region 7</u>	<u>Region 8</u>	<u>Region 9</u>	<u>Region 10</u>	<u>Jefferson</u>	<u>Mobile</u>	
Labor force	189,581	135,052	322,191	150,999	318,434	186,473	
Employed	181,279	127,311	308,118	144,803	305,777	178,667	
Underemployment rate	22.4%	30.2%	25.1%	22.8%	19.8%	29.7%	
Underemployed workers	40,606	38,448	77,338	33,015	60,544	53,064	
Unemployed	8,302	7,741	14,073	6,196	12,657	7,806	
Available labor pool	48,908	46,189	91,411	39,211	73,201	60,870	

Note: Rounding errors may be present. Based on May 2008 labor force data and 2008 underemployment rates.

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

Underemployment rates for counties, WDRs, and the state were determined from an extensive survey on the state's workforce. A total of 10,828 complete responses were obtained. About 48 percent (5,233 respondents) were employed, of whom 1,265 stated that they were underemployed. Among the WDRs, underemployment ranges from 20.1 percent for Region 1 to 30.2 percent for Region 8. Region 4 has the highest available labor, followed by Region 2, with the two regions accounting for 39.4 percent of the state's available labor pool. Among counties, Chambers had the highest rate of underemployment, at 36.1 percent, and Winston had the lowest rate with 12.0 percent. Thirty-one counties had underemployment rates above the state's 24.2 percent.

A lack of job opportunities in their area, low wages at available jobs, living too far from jobs, and child care responsibilities are the primary reasons given for being underemployed. Ongoing economic development efforts can help in this regard. Nonworkers cite retirement and disability as the main reasons for their status, but some also cite a lack of job opportunities in their area and low wages as additional major reasons. Such workers may become part of the labor force if their problems can be addressed. Thus 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 and more of the part-timers prefer full-time work.
- More hold multiple jobs.
- They have slightly less commute time and distance.
- The underemployed are almost similarly distributed across industries and occupations.
- They earn less and have less job tenure.
- Fewer believe their jobs fit well with their education and training, skills, and experience.
- Fewer are satisfied with their current jobs.
- More believe they are qualified for a better job.
- More are willing to train for a better job even if they have to pay part or all of the cost.
- If offered up to 30 percent higher income, more would leave their current jobs.
- More are willing to commute longer and farther one-way for a better job, 45 percent (vs. 38 percent) for 20+ minutes longer and 32 percent (vs. 28 percent) for 20+ extra miles.
- Are more active in the labor market; more have sought better jobs in the preceding quarter.
- They have slightly lower educational attainment, but are nearly similar in age.
- Fewer are married and slightly more are male and Hispanic.
- Fewer are white (67 percent of underemployed to 74 percent of workforce).

Table A.8 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 Alabama workers (74.5 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. Clearly, fewer underemployed workers are satisfied with their jobs. The underemployed are also more dissatisfied with their earnings.

Workers are generally willing to train for a new or better job, with the underemployed being much more willing (74.4 percent vs. 63.2 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 government and lowest when the trainee must pay the full costs. In every case of cost burden considered, the underemployed are more willing to train for the new or better job. The results do 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 A.8 Job Satisfaction and Willingness to Train (Percent)

Job Satisfaction						
		Completely Dissatisfied	Dissatisfied	Neutral	Satisfied	Completely Satisfied
Employed						
Overall		4.2	4.7	16.3	28.2	46.3
	Earnings	11.1	11.0	23.4	26.2	27.9
	Retention	5.1	4.1	10.1	19.0	60.0
	Work	1.9	2.5	9.0	25.9	60.5
	Hours	4.1	4.6	11.4	21.2	58.5
	Shift	3.3	3.4	7.8	16.8	68.2
	Conditions	3.6	4.9	15.1	26.6	49.5
	Commuting Distance	6.1	7.1	12.3	14.0	60.1
Underemployed						
Overall		9.2	10.6	25.2	26.9	27.7
	Earnings	23.7	19.3	23.9	18.4	14.6
	Retention	10.3	9.0	13.9	20.2	45.1
	Work	4.3	5.3	15.1	28.7	46.4
	Hours	8.2	8.4	13.8	21.5	48.0
	Shift	5.9	6.3	11.1	17.8	58.7
	Conditions	7.5	9.6	21.0	26.6	35.6
	Commuting Distance	8.7	8.8	13.4	14.7	53.8
Willingness to Train						
		Completely Unwilling	Unwilling	Neutral	Willing	Completely Willing
Employed						
For a new or better job		17.5	4.6	13.3	12.8	50.4
	If paid by trainee	38.8	20.4	21.6	6.9	10.0
	If paid by trainee and government	9.6	10.1	33.0	21.4	23.8
	If paid by government	3.4	2.3	8.1	12.5	72.5
Underemployed						
For a new or better job		10.2	3.5	10.5	12.0	62.4
	If paid by trainee	36.3	20.3	21.5	7.4	11.5
	If paid by trainee and government	7.0	8.1	30.8	23.5	28.1
	If paid by government	1.8	1.4	4.3	12.2	79.1

Note: Rounding errors may be present.

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

Workforce Demand

Industry Mix

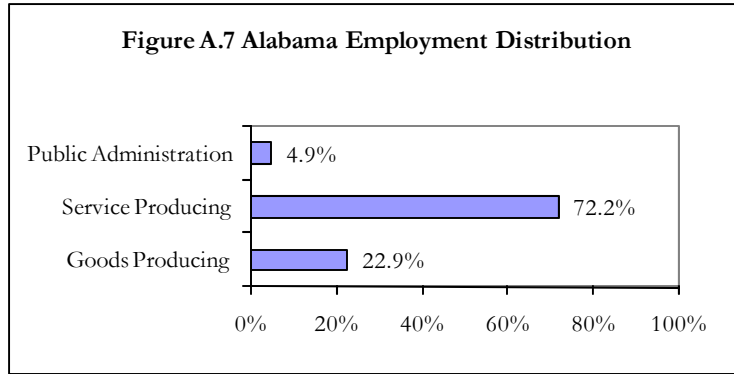
The manufacturing sector was the leading employer in Alabama with about 303,500 jobs in the second quarter of 2007 (Table A.9). Rounding out the top five industries by employment are retail trade, health care and social assistance, educational services, and accommodation and food services. These five industries provided 1,091,177 jobs, 57.5 percent of the state total. The average monthly wage across all industries in the state was \$3,068. New hire monthly earnings averaged \$2,284 or 74 percent of the average monthly wage. The highest average monthly wages were for mining at \$5,276, utilities \$4,736, and professional, scientific, and technical services \$4,622. Accommodation and food services paid the least at \$1,254. Mining had the highest average monthly new hire wages with \$4,180. The finance and insurance sector was next with \$3,855, followed by professional, scientific, and technical services with \$3,668. Accommodation and food services paid newly hired workers the least, \$917.

Table A.9 Industry Mix (Second Quarter 2007)

Industry by 2-digit NAICS Code	Total Employment	Share	Rank	Average Monthly Wage	Average Monthly New Hire Earnings
11 Agriculture, Forestry, Fishing and Hunting	13,144	0.69%	19	\$2,611	\$1,949
21 Mining	8,229	0.43%	20	\$5,276	\$4,180
22 Utilities	19,384	1.02%	16	\$4,736	\$3,449
23 Construction	109,598	5.77%	7	\$3,243	\$2,637
31-33 Manufacturing	303,478	15.98%	1	\$3,638	\$3,024
42 Wholesale Trade	82,568	4.35%	10	\$4,082	\$3,608
44-45 Retail Trade	244,018	12.85%	2	\$2,179	\$1,516
48-49 Transportation and Warehousing	58,875	3.10%	12	\$3,162	\$2,591
51 Information	28,965	1.53%	14	\$3,707	\$2,971
52 Finance and Insurance	73,387	3.86%	11	\$4,094	\$3,855
53 Real Estate and Rental and Leasing	27,393	1.44%	15	\$2,833	\$2,356
54 Professional, Scientific, and Technical Services	98,481	5.19%	8	\$4,622	\$3,668
55 Management of Companies and Enterprises	15,799	0.83%	18	\$3,910	\$3,618
56 Administrative and Support and Waste Management and Remediation Services	110,590	5.82%	6	\$2,088	\$1,488
61 Educational Services	164,496	8.66%	4	\$3,027	\$1,626
62 Health Care and Social Assistance	221,440	11.66%	3	\$3,054	\$2,253
71 Arts, Entertainment, and Recreation	18,873	0.99%	17	\$1,723	\$1,257
72 Accommodation and Food Services	157,745	8.31%	5	\$1,254	\$917
81 Other Services (Except Public Administration)	48,937	2.58%	13	\$2,346	\$1,701
92 Public Administration	93,818	4.94%	9	\$3,016	\$1,998
ALL INDUSTRIES	1,899,219	100.00%		\$3,068	\$2,284

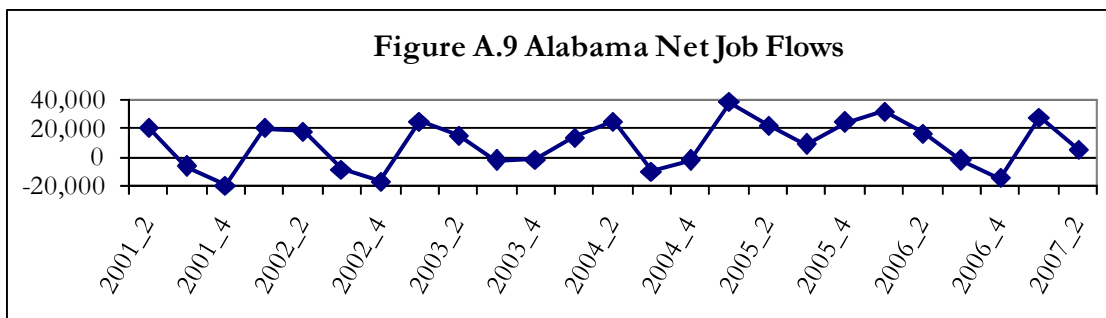
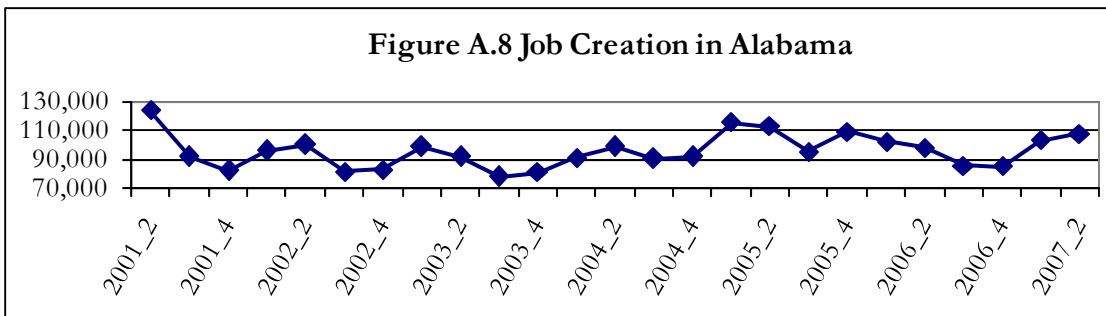
Source: Alabama Department of Industrial Relations and U.S. Census Bureau.

The leading employers were not the highest paying sectors. Indeed, of the top five employers, manufacturing was the only one that paid wages above the state average. The smallest employer, mining, paid the highest wages. By broad industry classification, service producing industries provided a little over 72 percent of total state jobs in second quarter 2007. Goods producing industries were next with about 23 percent and public administration accounted for almost 5 percent. The distribution is for all nonagricultural jobs and there is significant variation by WDR.



Job Creation and Net Job Flows

About 95,850 jobs were created on average per quarter from second quarter 2001 to second quarter 2007. Figure A.8 shows job creation over the period, with a slightly upward trend since the third quarter of 2003. Quarterly net job flows averaged about 9,260 in the same period and follow somewhat the job creation trend (Figure A.9). Quarterly net job flows have ranged from a loss of about 19,800 to a gain of almost 38,700. Net job flows clearly fluctuate greatly but hiring activity has been generally encouraging since 2003. 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.



Source: Alabama Department of Industrial Relations and U.S. Census Bureau.

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

Out of a total 901 occupations and occupational categories statewide, 785 are single occupations. Table A.10 shows the 40 occupations that are expected to be in high-demand, ranked by projected average annual job openings over the 2006 to 2016 period. Many of these occupations are common to the five largest employment sectors identified earlier (Table A.9): manufacturing; retail trade; health care and social assistance; educational services; and accommodation and food services. Thus, these sectors will continue to dominate employment in the state.

The top five high-demand occupations are Registered Nurses; Team Assemblers; Customer Service Representatives; Elementary School Teachers, Except Special Education; and Home Health Aides. Twenty-five of the high-demand occupations are also fast-growing. This means that these 25 occupations have a minimum annual growth rate of 2.7 percent or about twice the statewide occupational growth rate of 1.4 percent.

The 40 fastest growing occupations ranked by projected growth of employment are listed in Table A.11. More than half of these occupations are health or computer-related. The top five fast-growing occupations are Rail Car Repairers; Network Systems and Data Communications Analysts; Veterinary Technologists and Technicians; Medical Assistants; and Home Health Aides.

Table A.12 shows the 50 selected highest earning occupations. In general, these occupations are in health, legal, management, engineering, computer, postsecondary education, and science fields. Nine of the top 10 are health occupations. Any discussion of earnings must consider that wages vary with experience. Occupations with the highest entry wages may not necessarily have the highest average or experienced wages. The lowest high-earning salary is \$75,890 for Nuclear Technicians and the highest is \$195,370 for Surgeons.

The selected high-earning occupations are generally not fast-growing or in high-demand. Nine occupations are both high-demand and high-earning (Table A.10). The following four occupations are in high-demand, fast-growing, and high-earning:

1. Management Analysts
2. Computer Software Engineers, Systems Software
3. Personal Financial Advisors
4. Biological Science Teachers, Postsecondary

Of the state's 901 occupations and occupational categories, 112 are expected to decline over the 2006 to 2016 period. Employment in the 25 sharpest-declining occupations will fall by at least 12 percent, with each losing a minimum of 100 jobs over the period (Table A.13). No efforts should be made to sustain these occupations because they are declining as a result of structural changes in the Alabama economy.

Table A.10 Selected High-Demand Occupations (Base Year 2006 and Projected Year 2016)

Occupation	Average Annual Job Openings		
	Total	Due to Growth	Due to Separations
Registered Nurses	1,820	1,155	665
Team Assemblers	1,640	925	715
Customer Service Representatives	1,235	600	635
Elementary School Teachers, Except Special Education	835	410	425
Home Health Aides *	545	460	85
Computer Systems Analysts *	450	245	205
Pharmacy Technicians *	375	195	180
Management Analysts *	345	220	125
Clergy *	340	235	105
Bill and Account Collectors *	320	220	100
Medical Assistants *	315	250	65
Computer Software Engineers, Applications *	230	175	55
Network and Computer Systems Administrators *	215	130	85
Network Systems and Data Communications Analysts *	200	145	55
Pharmacists	180	105	75
Computer Software Engineers, Systems Software *	175	125	50
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders *	175	115	60
Dental Hygienists *	165	110	55
Aerospace Engineers	160	85	75
Dental Assistants *	160	110	50
Fitness Trainers and Aerobics Instructors *	155	105	50
Industrial Engineers *	140	85	55
Medical and Health Services Managers	120	65	55
Paralegals and Legal Assistants	115	80	35
Medical and Public Health Social Workers *	110	70	40
Cost Estimators	110	60	50
Vocational Education Teachers, Postsecondary *	100	65	35
Directors, Religious Activities and Education	100	55	45
Physical Therapists *	90	65	25
Aircraft Mechanics and Service Technicians *	85	65	20
Securities, Commodities, and Financial Services Sales Agents	85	40	45
Personal Financial Advisors *	80	65	15
Physical Therapist Assistants *	65	50	15
Logisticians	60	40	20
Health Specialties Teachers, Postsecondary	55	35	20
Biological Science Teachers, Postsecondary *	45	30	15
Business Teachers, Postsecondary	45	30	15
Database Administrators *	40	30	10
Occupational Therapists	40	25	15
Physician Assistants *	35	25	10

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 Industrial Relations and Center for Business and Economic Research, The University of Alabama.

Table A.11 Selected Fast-Growing Occupations (Base Year 2006 and Projected Year 2016)

Occupation	Employment		Percent Change	Annual Growth (Percent)	Average Annual Job Openings
	2006	2016			
Rail Car Repairers	260	440	69	5.40	20
Network Systems and Data Communications Analysts *	2,770	4,230	53	4.32	200
Veterinary Technologists and Technicians	940	1,430	52	4.28	80
Medical Assistants *	5,230	7,750	48	4.01	315
Home Health Aides *	9,590	14,210	48	4.01	545
Computer Software Engineers, Applications *	3,670	5,420	48	3.98	230
Occupational Therapist Assistants	210	310	48	3.97	15
Court Reporters	240	350	46	3.85	15
Physician Assistants *	550	780	42	3.56	35
Physical Therapist Assistants *	1,220	1,720	41	3.49	65
Health Educators	370	520	41	3.46	20
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders *	2,940	4,090	39	3.36	175
Dental Hygienists *	2,860	3,970	39	3.33	165
Dental Assistants *	2,850	3,950	39	3.32	160
Fitness Trainers and Aerobics Instructors *	2,750	3,790	38	3.26	155
Personal Financial Advisors *	1,780	2,450	38	3.25	80
Computer Software Engineers, Systems Software *	3,400	4,670	37	3.22	175
Industrial Engineers *	2,300	3,140	37	3.16	140
Database Administrators *	870	1,180	36	3.09	40
Physical Therapists *	1,930	2,600	35	3.02	90
Medical and Public Health Social Workers *	1,960	2,640	35	3.02	110
Biological Science Teachers, Postsecondary *	870	1,170	34	3.01	45
Skin Care Specialists	290	390	34	3.01	15
Network and Computer Systems Administrators *	3,740	5,020	34	2.99	215
Physical Therapist Aides	590	790	34	2.96	30
Personal and Home Care Aides	2,900	3,880	34	2.95	150
Pharmacy Technicians *	5,820	7,780	34	2.95	375
Bill and Account Collectors *	6,590	8,790	33	2.92	320
Forensic Science Technicians	150	200	33	2.92	10
Athletic Trainers	150	200	33	2.92	10
Aircraft Mechanics and Service Technicians *	1,940	2,580	33	2.89	85
Helpers, Construction Trades, All Other	NA	NA	32	2.84	20
Marriage and Family Therapists	280	370	32	2.83	15
Vocational Education Teachers, Postsecondary *	1,980	2,610	32	2.80	100
Biological Technicians	410	540	32	2.79	30
Philosophy and Religion Teachers, Postsecondary	190	250	32	2.78	10
Computer Systems Analysts *	7,820	10,270	31	2.76	450
Gaming and Sports Book Writers and Runners	160	210	31	2.76	10
Clergy *	7,670	10,040	31	2.73	340
Management Analysts *	7,180	9,370	31	2.70	345

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. NA - Not available.

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

Table A.12 Selected High-Earning Occupations (Base Year 2006 and Projected Year 2016)

Occupation	Employment		Annual Growth (Percent)	Average Annual Job Openings	Mean Annual Salary (\$)
	2006	2016			
Surgeons	1,080	1,280	1.71	40	195,370
Oral and Maxillofacial Surgeons	80	90	1.18	0	191,770
Internists, General	1,000	1,160	1.50	35	185,060
Psychiatrists	200	240	1.84	10	183,560
Orthodontists	100	110	0.96	0	183,110
Dentists, General	1,810	2,010	1.05	55	149,640
Chief Executives	4,420	4,770	0.76	155	147,680
Podiatrists	160	170	0.61	5	147,350
Pediatricians, General	690	830	1.86	30	145,950
Family and General Practitioners	1,180	1,400	1.72	40	145,680
Chiropractors	730	870	1.77	25	129,720
Administrative Law Judges, Adjudicators, and Hearing Officers	100	110	0.96	0	114,040
Lawyers	8,180	9,460	1.46	285	108,730
Physicists	220	250	1.29	10	106,080
Personal Financial Advisors *	1,780	2,450	3.25	80	102,680
Pharmacists *	4,380	5,430	2.17	180	101,140
Natural Sciences Managers	180	200	1.06	10	100,360
Engineering Managers	2,790	3,260	1.57	100	100,040
Computer and Information Systems Managers	2,400	2,920	1.98	90	97,700
Mathematicians	30	40	2.92	0	97,280
Real Estate Brokers	1,120	1,230	0.94	30	95,170
Computer and Information Scientists, Research	460	550	1.80	20	94,810
Marketing Managers	1,440	1,630	1.25	50	94,030
Sales Managers	3,380	3,830	1.26	120	93,320
Aerospace Engineers *	3,830	4,680	2.02	160	92,940
Law Teachers, Postsecondary	100	130	2.66	5	92,060
General and Operations Managers	29,620	31,430	0.59	895	90,720
Financial Managers	5,530	6,250	1.23	150	88,930
Education Administrators, Postsecondary	2,660	3,160	1.74	125	87,910
Optometrists	510	590	1.47	20	86,290
Health Specialties Teachers, Postsecondary *	1,230	1,570	2.47	55	85,570
Airline Pilots, Copilots, and Flight Engineers	370	410	1.03	15	85,070
Air Traffic Controllers	220	280	2.44	10	84,800
Purchasing Managers	1,000	1,110	1.05	40	84,500
Electronics Engineers, Except Computer	1,630	1,810	1.05	60	84,010
Management Analysts *	7,180	9,370	2.70	345	83,260
Chemical Engineers	690	820	1.74	35	82,690
Computer Software Engineers, Systems Software *	3,400	4,670	3.22	175	81,790
Materials Engineers	530	670	2.37	25	81,520
Mining and Geological Engineers, Including Mining Safety Engineers	NA	NA	0.47	5	80,190
Medical and Health Services Managers *	2,940	3,570	1.96	120	79,490
Biological Science Teachers, Postsecondary *	870	1,170	3.01	45	79,020
Securities, Commodities, and Financial Services Sales Agents *	1,760	2,180	2.16	85	78,590
Electrical Engineers	3,220	3,600	1.12	115	78,140
Hydrologists	30	50	5.24	0	77,970
Compensation and Benefits Managers	370	420	1.28	10	77,780
Mechanical Engineers	3,900	4,600	1.66	155	77,130
Computer Hardware Engineers	1,140	1,370	1.85	60	76,870
Public Relations Managers	1,270	1,560	2.08	60	76,100
Nuclear Technicians	NA	NA	0.00	5	75,890

Note: Only the 50 highest earning single occupations are presented. High-earning occupational groups are not listed because earnings can vary considerably for occupations within such groups. Employment and salaries data are rounded to the nearest 10; openings to the nearest 5. The salary data provided are based on the May 2007 release of the Occupational Employment Statistics (OES) combined employment and wage file. Estimates for specific occupations may include imputed data. Occupations in bold are also fast-growing. NA – Not available.

* Qualify as both high-earning and high-demand occupations.

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

Table A.13 Selected Sharp-Declining Occupations (Base Year 2006 and Projected Year 2016)

Occupation	Employment		Net Change	Percent Change
	2006	2016		
Sewing Machine Operators	9,500	7,090	-2,410	-25
Farmers and Ranchers	14,090	12,420	-1,670	-12
Textile Knitting & Weaving Machine Setters, Operators, and Tenders	3,310	1,980	-1,330	-40
Textile Winding and Drawing Out Machine Setters, Operators, and Tenders	3,530	2,260	-1,270	-36
File Clerks	2,720	1,770	-950	-35
Order Clerks	3,280	2,460	-820	-25
Paper Goods Machine Setters, Operators, and Tenders	3,050	2,540	-510	-17
Computer Operators	1,950	1,470	-480	-25
Electrical and Electronic Equipment Assemblers	3,220	2,780	-440	-14
Photographic Processing Machine Operators	790	430	-360	-46
Textile Bleaching and Dyeing Machine Operators, and Tenders	880	530	-350	-40
Textile, Apparel, and Furnishings Workers, All Other	1,390	1,090	-300	-22
Textile Cutting Machine Setters, Operators, and Tenders	990	700	-290	-29
Farm Equipment Mechanics	790	570	-220	-28
Telephone Operators	620	410	-210	-34
Extruding and Forming Machine Setters, Operators, Synthetic & Glass	840	630	-210	-25
Fishers and Related Fishing Workers	1,280	1,120	-160	-13
New Accounts Clerks	830	700	-130	-16
Reservation and Transportation Ticket Agents and Travel Clerks	NA	NA	-130	-14
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	760	640	-120	-16
Credit Authorizers, Checkers, and Clerks	860	750	-110	-13
Bindery Workers	510	400	-110	-22
Prepress Technicians and Workers	490	380	-110	-22
Agricultural Equipment Operators	750	650	-100	-13
Job Printers	830	730	-100	-12

Note: Employment data are rounded to the nearest 10. NA - Not available.

Source: Alabama Department of Industrial Relations 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.14 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 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 A.15 shows the percentage of selected 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.15 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.14 Skill Types and Definitions

<p>Basic Skills: Developed capacities that facilitate learning or the more rapid acquisition of knowledge.</p> <p>Active Learning — Understanding the implications of new information for both current and future problem-solving and decision-making.</p> <p>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.</p> <p>Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.</p> <p>Learning Strategies — Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things.</p> <p>Mathematics — Using mathematics to solve problems.</p> <p>Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.</p> <p>Reading Comprehension — Understanding written sentences and paragraphs in work-related documents.</p> <p>Science — Using scientific rules and methods to solve problems.</p> <p>Speaking — Talking to others to convey information effectively.</p> <p>Writing — Communicating effectively in writing as appropriate for the needs of the audience.</p> <p>Complex Problem Solving Skills: Developed capacities used to solve novel, ill-defined problems in complex, real-world settings.</p> <p>Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.</p> <p>Resource Management Skills: Developed capacities used to allocate resources efficiently.</p> <p>Management of Financial Resources — Determining how money will be spent to get the work done and accounting for these expenditures.</p> <p>Management of Material Resources — Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work.</p> <p>Management of Personnel Resources — Motivating, developing, and directing people as they work, identifying the best people for the job.</p> <p>Time Management — Managing one's own time and the time of others.</p> <p>Social Skills: Developed capacities used to work with people to achieve goals.</p> <p>Coordination — Adjusting actions in relation to others' actions.</p> <p>Instructing — Teaching others how to do something.</p> <p>Negotiation — Bringing others together and trying to reconcile differences.</p> <p>Persuasion — Persuading others to change their minds or behavior.</p> <p>Service Orientation — Actively looking for ways to help people.</p> <p>Social Perceptiveness — Being aware of others' reactions and understanding why they react as they do.</p> <p>Systems Skills: Developed capacities used to understand, monitor, and improve socio-technical systems.</p> <p>Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.</p> <p>Systems Analysis — Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes.</p> <p>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.</p> <p>Technical Skills: Developed capacities used to design, set-up, operate, and correct malfunctions involving application of machines or technological systems</p> <p>Equipment Maintenance — Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.</p> <p>Equipment Selection — Determining the kind of tools and equipment needed to do a job.</p> <p>Installation — Installing equipment, machines, wiring, or programs to meet specifications.</p> <p>Operation and Control — Controlling operations of equipment or systems.</p> <p>Operation Monitoring — Watching gauges, dials, or other indicators to make sure a machine is working properly.</p> <p>Operations Analysis — Analyzing needs and product requirements to create a design.</p> <p>Programming — Writing computer programs for various purposes.</p> <p>Quality Control Analysis — Conducting tests and inspections of products, services, or processes to evaluate quality or performance.</p> <p>Repairing — Repairing machines or systems using the needed tools.</p> <p>Technology Design — Generating or adapting equipment and technology to serve user needs.</p> <p>Troubleshooting — Determining causes of operating errors and deciding what to do about it.</p>

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

Table A.15 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	75	68	72
Active Listening	78	75	80
Critical Thinking	78	63	92
Learning Strategies	23	30	12
Mathematics	18	20	34
Monitoring	33	28	36
Reading Comprehension	88	80	88
Science	13	15	38
Speaking	73	65	64
Writing	58	38	44
Complex Problem Solving Skills			
Complex Problem Solving	18	20	36
Resource Management Skills			
Management of Financial Resources	5	3	16
Management of Material Resources	0	0	2
Management of Personnel Resources	5	0	12
Time Management	63	55	46
Social Skills			
Coordination	28	35	30
Instructing	50	48	18
Negotiation	0	0	12
Persuasion	3	0	16
Service Orientation	40	35	12
Social Perceptiveness	35	38	14
Systems Skills			
Judgment and Decision Making	33	23	74
Systems Analysis	8	5	10
Systems Evaluation	5	0	24
Technical Skills			
Equipment Maintenance	5	8	0
Equipment Selection	15	18	10
Installation	8	10	0
Operation and Control	3	3	8
Operation Monitoring	3	3	4
Operations Analysis	8	8	14
Programming	5	5	4
Quality Control Analysis	8	15	2
Repairing	3	5	0
Technology Design	8	8	10
Troubleshooting	18	20	10

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 mathematics, science, critical thinking, complex problem solving, financial resource management, and systems skills than both high-demand and fast-growing jobs. These are skills that require long training periods and postsecondary education. However, high-earning jobs require less social and technical skills. High-demand occupations require more resource management and systems skills, but less technical and complex problem solving skills than fast-growing occupations.

Table A.16 shows skill gap indexes for all 35 skills in Table A.14. 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 focus is on the projection period, which for Table A.16 is 2006 to 2016, and identifies critical skill needs. The index essentially ranks expected training needs. The higher the index the more critical is 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, resource management, system, and technical skills. The importance of basic skills generally and for high-demand, high-growth, and high-earning jobs indicates a strong need for training in these skills. The pace of training needs to increase for technical and systems skills while the scale of training should be raised for basic and social skills.

Education and Training Issues

Educational attainment in Alabama is low compared to the nation as a whole. Seventy-five percent of Alabamians age 25 and over have graduated from high school, compared to 80.4 percent for the nation. Of that population, 19 percent of Alabamians have a bachelor's or higher degree; 24.4 percent of all Americans do. Skill and education requirements for jobs keep rising. This highlights a strong need to raise educational attainment in the state.

Table A.17 shows the number of selected occupations in Alabama for which a particular education/training category is most common. In general, high-earning occupations require high educational attainment levels; all but three of the high-earning occupations require a bachelor's or higher degree. Twenty-nine (73 percent) of the 40 high-demand occupations require an associate degree at the minimum and twenty-five (63 percent) require a bachelor's or higher degree. Twenty-five (63 percent) of the 40 fast-growing occupations require an associate degree at the minimum and nineteen (48 percent) require a bachelor's or higher degree.

The 2006 to 2016 occupational projections indicate that future jobs will require postsecondary education and training at a minimum. Job ads are increasingly requiring a high school diploma or GED at a minimum. Of the state's 901 occupations and occupational categories, 112 are expected to decline over the period and education and training for these should slow accordingly.

Table A.16 Skills Gap Indexes (Base Year 2006 and Projected Year 2016)

Skill	Total Openings (Projected Demand)	Replacement Index	Skills Gap Index
Reading Comprehension	41,950	54	100
Active Listening	41,465	55	97
Critical Thinking	37,740	54	94
Speaking	33,365	53	91
Active Learning	33,650	54	88
Coordination	32,215	54	85
Monitoring	30,430	54	82
Writing	29,915	54	79
Instructing	30,305	54	76
Time Management	28,620	53	73
Learning Strategies	27,735	53	70
Social Perceptiveness	25,855	52	67
Service Orientation	22,290	52	64
Systems Analysis	20,580	54	61
Persuasion	20,660	55	58
Complex Problem Solving	19,025	53	55
Mathematics	17,290	54	52
Equipment Selection	14,110	55	50
Troubleshooting	9,895	53	47
Negotiation	10,340	59	44
Management of Personnel Resources	10,155	61	41
Equipment Maintenance	8,605	55	38
Installation	6,985	52	35
Management of Financial Resources	6,205	58	32
Operations Analysis	5,470	52	29
Repairing	5,000	54	26
Quality Control	4,950	56	23
Systems Evaluation	4,155	51	20
Science	3,830	54	17
Operation Monitoring	5,380	64	14
Judgment and Decision Making	3,145	47	11
Operation and Control	4,720	60	8
Technology Design	2,795	51	5
Management of Material Resources	3,265	63	2
Programming	705	43	0

Source: Alabama Department of Industrial Relations.

Table A.17 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
First Professional Degree	1	0	14
Doctoral Degree	1	2	4
Master's Degree	5	4	2
Work Experience Plus a Bachelor's or Higher Degree	3	2	15
Bachelor's Degree	15	11	12
Associate Degree	4	6	1
Postsecondary Vocational Training	2	4	0
Work Experience in a Related Occupation	1	0	1
Long-term On-the-job Training	0	1	1
Moderate-term On-the-job Training	6	4	0
Short-term On-the-job Training	2	6	0

Note: The last three education and training requirements categories are based on the length of time it generally takes an average worker to achieve proficiency for occupations in which postsecondary training is usually not needed for entry. **Long-term** requires more than 12 months on-the-job training that can include up to four years of apprenticeship, formal classroom instruction, and short-term employer-sponsored training. Trainees are generally considered to be employed in the occupation. **Moderate-term** requires one to 12 months on-the-job experience and informal training. **Short-term** requires up to one month on-the-job experience and training.

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

Implications and Recommendations

Job growth is expected to exceed population and labor force growth through 2016 and 2025 (Table A.18). From a 2006 base, worker shortfalls of about 141,000 and 406,000 are estimated by 2016 and 2025, respectively. Employment is critical to economic development and so strategies to address the potential shortfalls must be adopted and implemented. Such strategies should aim at increasing labor force participation, encouraging in-migration, and raising worker productivity.

Table A.18 Expected Worker Shortfall

	2006-2016	2006-2025
Total population growth (percent)	8.1	15.0
Age 20-64 population growth (percent)	6.8	7.6
Nonagricultural job growth (percent)	13.3	26.4
Worker shortfall (percent)	6.5	18.7
Worker shortfall (number)	140,606	405,909

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

Efforts to address the need for higher labor force participation, higher productivity, and faster labor force growth to meet workforce demand 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. Using economic opportunities to attract new residents
5. Facilitating in-commuting
6. Encouraging older worker participation

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 generally 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 and systems skills while the scale of training is 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 to identify future skill needs and any existing gaps. Education and training for the 25 sharp-declining occupations in Table A.13 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 of the 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 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—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 and investment in training, transportation, child care, 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 the ability to meet the expected job demand barring future economic slowdowns. Higher employment demand could be alleviated somewhat with 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.

Policies that facilitate and encourage older worker participation are needed as older workers can help meet the state's workforce challenge. 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 (see 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 that (i) gradually raise the normal retirement age from 65 to 67, (ii) increase the rate at which monthly payments rise with delayed benefits, and (iii) eliminate 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 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.