State of the Workforce Report IV:
Alabama

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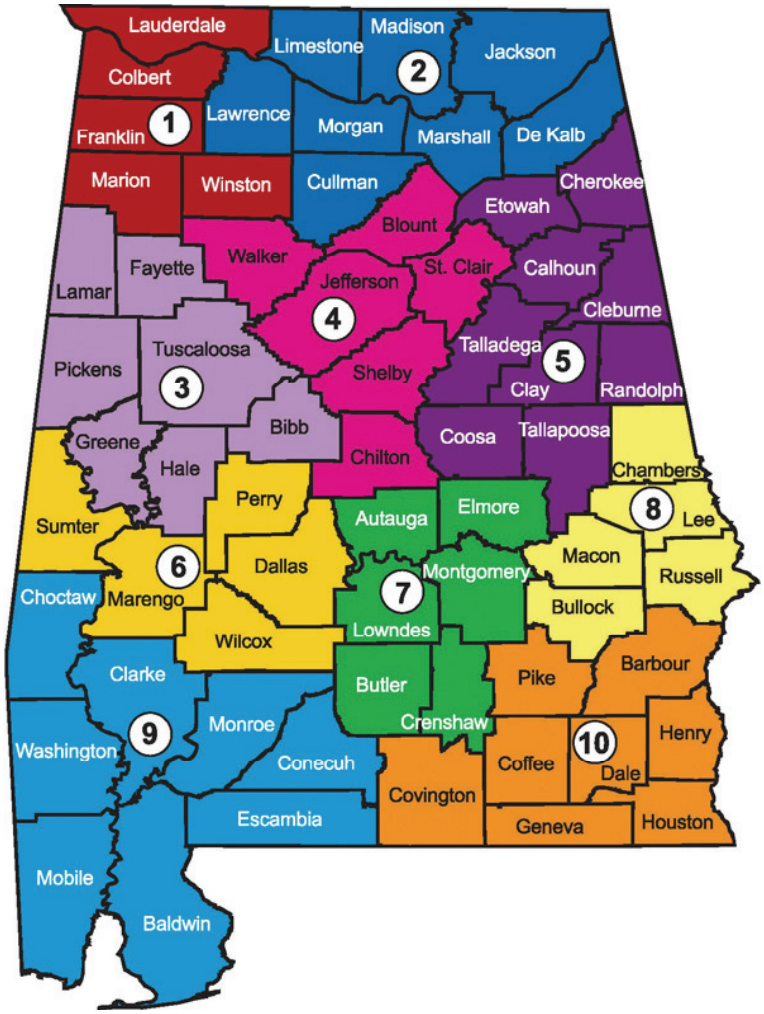

October 2009

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

THE UNIVERSITY OF ALABAMA

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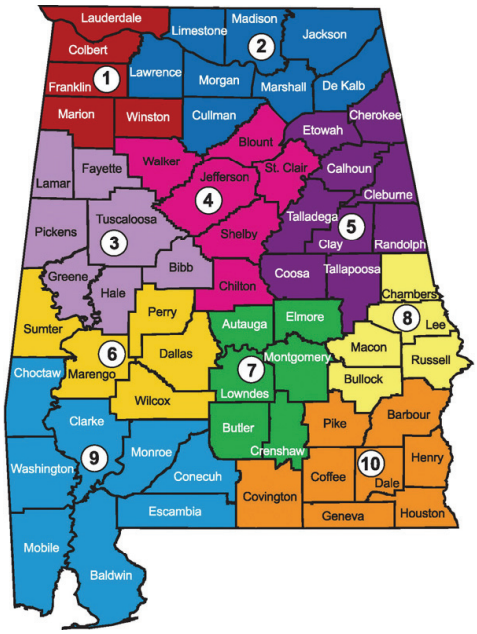

October 2009

by

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Contents

Summary

- This report analyzes Alabama workforce supply and demand issues using available metrics of workforce characteristics and presents implications and recommendations.

- Alabama had an unemployment rate of 8.8 percent in May 2009, with 186,081 unemployed. An underemployment rate of 24.3 percent for 2009 means that the state has a large 658,000-strong available labor pool that includes 471,500 underemployed workers who are looking for better jobs and are willing to commute farther and longer for such jobs.

- More job opportunities reduced net out-commuting drastically from 36,703 in 2000 to 6,393 in 2006, but increased commuting within the state worsened congestion, which slows economic development. 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, accommodation and food services, and educational services. These five industries provided 1,076,611 jobs, 57.1 percent of the state total, in the third quarter of 2008. The leading employers are not the highest paying sectors; just two (manufacturing and educational services) had wages that were above the state average monthly wage. 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 97,135 jobs were created per quarter from second quarter 2001 to third quarter 2008; quarterly net job flows averaged 9,336. 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, management, legal, engineering, computer, postsecondary education, and science fields and have a minimum salary of $82,690. Nine of the top 10 are health occupations.

- Of the top 40 high-demand, the top 40 fast-growing, and 50 high-earning occupations, three belong to all three categories: Personal Financial Advisors; Computer Software Engineers, Systems Software; and Biological Science Teachers, Postsecondary. Seven occupations are both high-demand and high-earning while 25 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.

- From a 2006 base, a worker surplus of about 79,000 for 2016 and a worker shortfall of almost 116,000 for 2025 are expected. This will demand a focus on worker skills through 2016, after which both skills and the expected shortfall must be priorities for 2025. Worker shortfalls for critical occupations will need to be addressed continuously. Strategies to address skill needs and worker shortfalls might include: (1) improvements in education and its funding; (2) use of economic opportunities to attract new residents; (3) focus on hard-to-serve populations (e.g. out-of-school youth); (4) lowering the high school dropout rate; (5) continuation and enhancement of programs to assess, retrain, and place dislocated workers; (6) encouragement of older worker participation in the labor force; and (7) facilitation of in-commuting.

- Improving education is important because (i) a highly educated and productive workforce is a critical economic development asset, (ii) productivity rises with education, (iii) educated people are more likely to work, and (iv) it yields high private and social rates of return on investment. Workforce development must view all of education and 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, while also promoting public and legislative support for education.

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

- 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, the disabled, and discouraged workers). Table A.1 shows labor force information for Alabama and each Workforce Development Region (WDR) in the state for 2008 and for May 2009.[1]

Table A.1 Alabama Labor Force Information

	2008			
	Labor Force	Employed	Unemployed	Rate (%)
Workforce Development Region 1	103,614	97,391	6,223	6.0
Workforce Development Region 2	414,517	396,818	17,699	4.3
Workforce Development Region 3	127,958	121,731	6,227	4.9
Workforce Development Region 4	520,375	497,118	23,257	4.5
Workforce Development Region 5	194,234	183,122	11,112	5.7
Workforce Development Region 6	34,817	31,586	3,231	9.3
Workforce Development Region 7	186,588	176,759	9,829	5.3
Workforce Development Region 8	113,938	106,517	7,421	6.5
Workforce Development Region 9	318,755	302,009	16,746	5.3
Workforce Development Region 10	147,693	140,455	7,238	3.5
Jefferson County	311,589	296,643	14,946	4.8
Mobile County	185,861	176,413	9,448	5.1
Alabama	2,162,479	2,053,502	108,977	5.0
United States	154,287,000	145,362,000	8,924,000	5.8
	May 2009			
	Labor Force	Employed	Unemployed	Rate (%)
Workforce Development Region 1	102,317	91,630	10,688	10.4
Workforce Development Region 2	405,902	373,607	32,296	8.0
Workforce Development Region 3	126,264	114,786	11,475	9.1
Workforce Development Region 4	506,824	466,554	40,270	7.9
Workforce Development Region 5	192,180	172,671	19,509	10.2
Workforce Development Region 6	35,430	29,781	5,648	15.9
Workforce Development Region 7	182,957	167,074	15,884	8.7
Workforce Development Region 8	111,317	100,874	10,442	9.4
Workforce Development Region 9	316,683	288,261	28,421	9.0
Workforce Development Region 10	144,893	133,445	11,447	7.9
Jefferson County	303,822	278,405	25,417	8.4
Mobile County	184,112	168,215	15,897	8.6
Alabama	2,124,766	1,938,686	186,081	8.8
United States	153,830,000	140,265,000	13,565,000	8.8

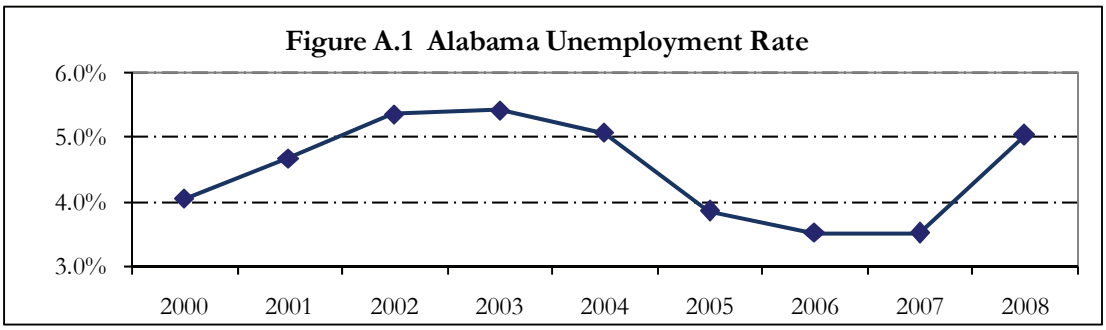
Source: Alabama Department of Industrial Relations and U.S. Bureau of Labor Statistics.

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

The recession that began in December 2007 has raised unemployment rates for the state and all WDRs. Unemployment rates in 2008 ranged between 3.5 percent and 9.3 percent for the WDRs, with a 5.0 percent annual average for the state. The May 2009 range for unemployment was 7.9 percent (WDRs 4 and 10) to 15.9 percent (WDR 6), with an 8.8 percent rate for the state. The six-county Region 4 had the largest labor force and WDR 6 had the smallest.

Annual state unemployment rates for 2000 to 2008 are shown in Figure A.1. Unemployment was low just before the 2001 and the most recent recession. Employment gains over the 2003 to 2007 period resulting from the state's successful economic development efforts brought the unemployment rate to record lows in 2006 and 2007. Year-to-date monthly labor force data point to a much higher state unemployment rate for 2009 than the 5.0 percent seen in 2008. Despite strong ongoing economic development efforts, the latest recession is likely to keep unemployment high for the next several years.

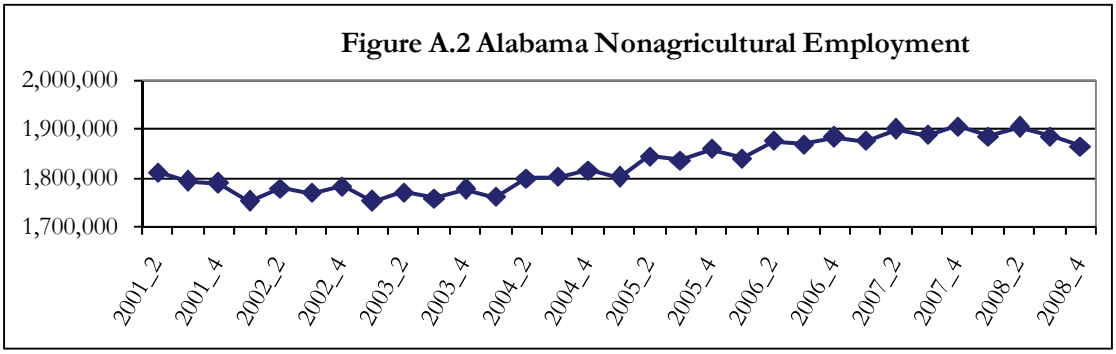
Figure A.1 Alabama Unemployment Rate



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 fourth quarter of 2008 (Figure A.2). The number of jobs in the state rose from a low in the first quarter of 2002 to a high in fourth quarter 2007, but has since declined.

Figure A.2 Alabama Nonagricultural Employment



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

Table A.2 shows worker distribution by age in Alabama for third quarter 2008. At 39.9 percent, older workers (age 45 and over), constitute a significant part of total nonagricultural employment. The share of older workers for the WDRs ranged from 37.6 percent for Region 8 to 46.0 percent for Region 6. To meet long term occupational projections for growth and replacement, labor force participation of younger residents must increase; else older workers may be required to work longer.

Table A.2 Workers by Age Group Q3 2008

	Nonagricultural Employment	
	Number	Percent
14-18	60,224	3.2
19-24	228,947	12.2
25-34	412,200	21.9
35-44	431,665	22.9
45-54	429,705	22.8
55-64	251,250	13.3
65+	70,341	3.7
45 and over total	751,296	39.9
Total all ages	1,884,333	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. Commuting data for 2006 show that net out-commuting shrank significantly from 36,703 to 6,393 in just six years. The level of in-commuting rose by 10,708, while out-commuting fell by 19,602 as economic development successes yielded more jobs in the state.

Table A.3 Commuting Patterns

Year	**Inflow**			**Outflow**	
	Number	Percent		Number	Percent
2000	41,494	100		78,197	100
2006	52,202	100		58,595	100

	Percent of workers			
Average commute time (one-way)	**2004**	**2005/2006**	**2008**	**2009**
Less than 20 minutes	57.3	55.2	54.9	53.0
20 to 40 minutes	27.0	29.1	29.6	29.6
40 minutes to an hour	9.3	9.3	9.4	10.8
More than an hour	1.7	2.3	2.9	2.2
Average commute distance (one-way)	**2004**	**2005/2006**	**2008**	**2009**
Less than 10 miles	45.9	46.5	46.0	45.5
10 to 25 miles	29.5	30.6	32.4	32.0
25 to 45 miles	13.7	13.4	13.5	15.5
More than 45 miles	6.1	4.5	6.3	5.1

Note: Rounding errors may be present.

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. Commute time and distance in 2009 are not significantly different from 2008, although fewer people are traveling to work. Congestion remains at about the same level in 2009 as in the previous year. This suggests that maintenance and development of transportation infrastructure and systems must continue in order to facilitate the movement of workers and goods. Impeding the mobility of workers and goods can delay or slow economic development.

Population

The Alabama population estimate of almost 4.7 million for 2008 is 4.8 percent more than was recorded for 2000 (Table A.4). Population grew faster for three WDRs than for the state, but population also shrank in two regions. The state's population is projected to grow 7.2 percent in this decade to approximately 4.8 million by 2010. Population growth in three WDRs should beat the state's rate. Region 6 is expected to see its population fall, which might shrink its labor force.

Table A.4 Population by Workforce Development Region

	1990 Census	2000 Census	2008 Estimate	% Change 2000-2008	2010 Projected	% Change 2000-2010
Workforce Development Region 1	211,024	230,230	228,031	-1.0	231,389	0.5
Workforce Development Region 2	665,495	766,335	837,227	9.3	864,975	12.9
Workforce Development Region 3	247,125	268,208	279,904	4.4	286,892	7.0
Workforce Development Region 4	940,268	1,031,412	1,095,979	6.3	1,120,901	8.7
Workforce Development Region 5	405,276	424,451	424,361	0.0	429,667	1.2
Workforce Development Region 6	113,715	108,746	100,634	-7.5	100,277	-7.8
Workforce Development Region 7	340,702	381,592	399,768	4.8	408,442	7.0
Workforce Development Region 8	206,852	237,250	251,024	5.8	257,721	8.6
Workforce Development Region 9	610,415	678,997	711,420	4.8	727,538	7.1
Workforce Development Region 10	299,715	319,879	333,552	4.3	340,967	6.6
Jefferson County	651,525	662,047	659,503	-0.4	662,603	0.1
Mobile County	378,643	399,843	406,309	1.6	412,009	3.0
Alabama	4,040,587	4,447,100	4,661,900	4.8	4,768,769	7.2
U.S.	248,709,873	281,421,906	304,059,724	8.0	310,232,863	10.2

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

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. If employment growth outpaces labor force growth as is expected for the long term, communities that experience rapid job gains may need to consider investments in amenities and infrastructure to attract new residents.

Table A.5 Alabama Population by Age Group (2000-2006) and Projections

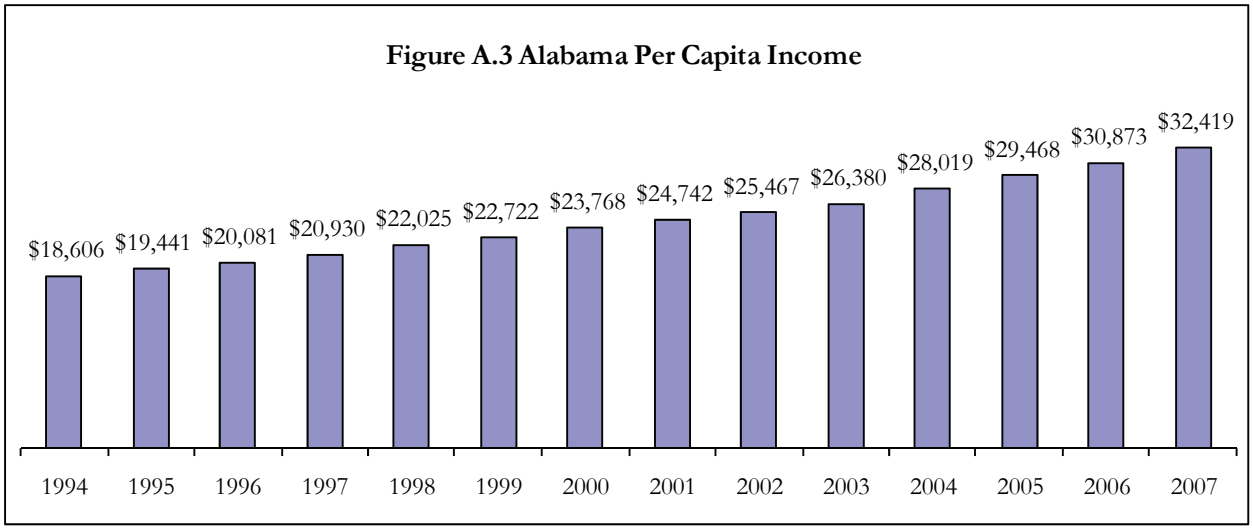
Age Group	2000	2006	2016	2025
0-19	1,256,169	1,246,094	1,271,208	1,323,897
20-24	306,865	323,448	341,309	338,046
25-29	301,196	295,060	327,422	319,903
30-34	301,819	291,943	314,801	335,223
35-39	340,300	303,946	304,825	333,922
40-44	345,212	335,636	311,487	331,558
45-49	315,173	345,345	320,814	315,937
50-54	285,036	320,876	351,381	325,901
55-59	225,450	286,240	355,844	330,297
60-64	190,082	227,547	319,487	356,122
65+	579,798	611,429	795,946	1,052,165
20-64 Total	**2,611,133**	**2,730,041**	**2,947,370**	**2,986,909**
Total Population	**4,447,100**	**4,587,564**	**5,014,524**	**5,362,974**
Change from 2006				
0-19			2.0%	6.2%
20-64			8.0%	9.4%
Total Population			9.3%	16.9%

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 $32,419 in 2007 (Figure A.3), up 74 percent from 1994. WDR 4 had the highest PCI with $39,717 followed by Region 7 with $33,631 and Region 2 with $32,528. In other regions, per capita income was lower than the Alabama state average. At $25,040, Region 6 had the lowest PCI.

Figure A.3 Alabama Per Capita Income



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

Educational Attainment

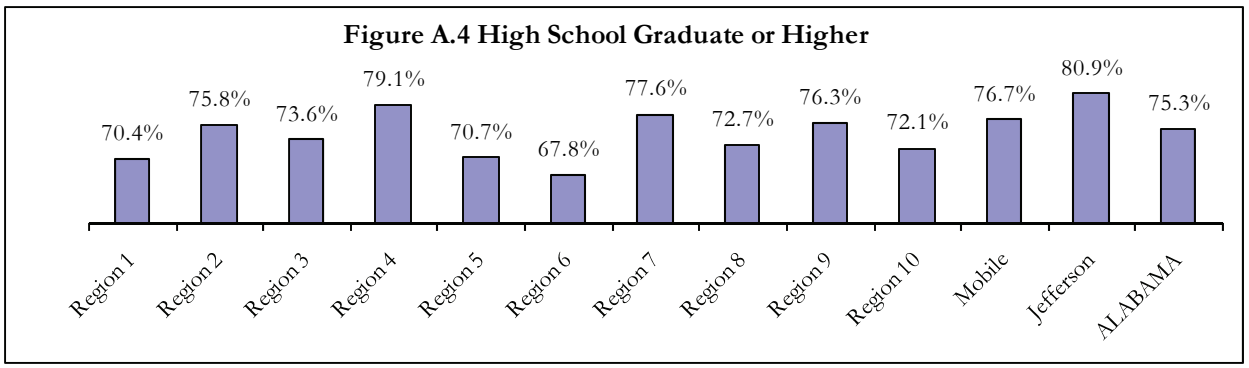
Educational attainment in 2000 of Alabama residents who were 25 years old and over is shown in Table A.6 and Figures A.4 and A.5. About 75 percent graduated from high school and 19 percent held a bachelor's or higher degree. Region 4 has the highest educational attainment and Region 6 has the lowest.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

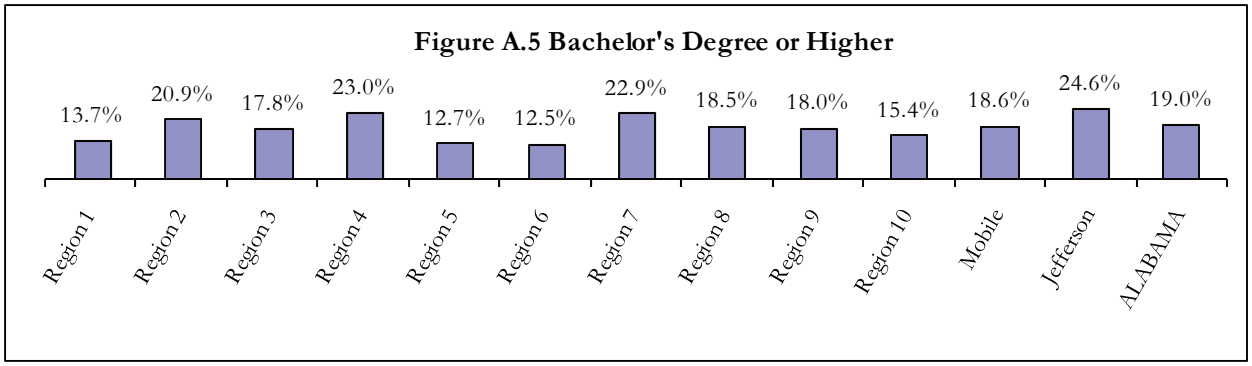
Table A.6 Educational Attainment in 2000, Population 25 Years and Over

	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7
Total	155,827	505,993	166,247	678,967	284,419	66,756	243,326
No schooling completed	1,967	5,155	2,727	6,935	3,544	1,630	2,931
Nursery to 4th grade	1,462	4,050	1,664	3,226	2,224	1,101	1,764
5th and 6th grade	4,382	11,461	3,606	11,308	7,012	2,214	4,103
7th and 8th grade	9,524	23,696	7,197	23,176	15,052	2,955	8,314
9th grade	7,873	20,662	6,669	21,358	14,254	2,853	7,985
10th grade	8,593	22,899	8,076	24,829	16,329	3,220	9,447
11th grade	6,614	18,772	6,892	23,889	13,689	3,394	9,382
12th grade, no diploma	5,725	15,555	7,131	27,398	11,365	4,107	10,594
High school graduate/equivalent	52,095	145,572	52,471	195,872	94,864	22,249	68,487
Some college, less than 1 year	9,904	34,438	9,939	43,521	17,925	3,730	16,590
Some college, 1+ years, no degree	19,455	69,585	21,692	103,590	37,586	7,770	35,797
Associate degree	6,928	28,645	8,589	37,407	14,555	3,201	12,120
Bachelor's degree	13,356	69,910	17,921	102,265	21,857	5,156	34,720
Master's degree	5,524	26,884	7,916	34,919	10,256	2,211	15,506
Professional school degree	1,616	5,246	1,909	13,919	2,844	746	3,879
Doctorate degree	809	3,463	1,848	5,355	1,063	219	1,707

	Region 8	Region 9	Region 10	Mobile	Jefferson	Alabama
Total	140,299	435,761	209,805	250,122	434,158	2,887,400
No schooling completed	2,068	5,324	3,493	3,033	4,227	35,774
Nursery to 4th grade	1,476	2,948	2,309	1,564	1,708	22,224
5th and 6th grade	3,636	6,912	5,435	3,279	5,904	60,069
7th and 8th grade	5,941	15,748	10,663	8,846	12,461	122,266
9th grade	5,405	14,679	8,973	7,988	11,360	110,711
10th grade	7,040	18,509	9,861	10,421	13,932	128,803
11th grade	6,181	18,485	9,311	10,826	14,635	116,609
12th grade, no diploma	6,517	20,810	8,423	12,266	18,723	117,625
High school graduate/equivalent	41,186	141,154	63,266	79,822	121,233	877,216
Some college, less than 1 year	8,737	28,237	15,037	16,388	27,914	188,058
Some college, 1+ years, no degree	18,205	61,438	27,879	35,788	70,628	402,997
Associate degree	7,904	23,270	12,821	13,276	24,600	155,440
Bachelor's degree	14,740	50,777	21,070	30,499	68,866	351,772
Master's degree	7,285	18,966	8,262	10,782	23,560	137,729
Professional school degree	1,508	5,876	2,284	3,586	10,532	39,827
Doctorate degree	2,470	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.





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.

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) 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 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 24.3 percent in 2009. Applying this rate to May 2009 labor force data means that about 471,500 employed Alabama residents were underemployed (Table A.7). Adding the unemployed gives a total available labor pool of nearly 658,000 for the state. This is 3.5 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

	Alabama	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6
Labor force	2,124,766	102,317	405,902	126,264	506,824	192,180	35,430
Employed	1,938,686	91,630	373,607	114,786	466,554	172,671	29,781
Underemployment rate	24.3%	21.0%	22.5%	23.9%	24.3%	25.6%	24.6%
Underemployed workers	471,488	19,224	84,174	27,457	113,373	44,238	7,335
Unemployed	186,081	10,688	32,296	11,475	40,270	19,509	5,648
Available labor pool	**657,569**	**29,912**	**116,470**	**38,932**	**153,643**	**63,747**	**12,983**

	Region 7	Region 8	Region 9	Region 10	Jefferson	Mobile
Labor force	182,957	111,317	316,683	144,893	303,822	184,112
Employed	167,074	100,874	288,261	133,445	278,405	168,215
Underemployment rate	27.5%	28.8%	23.8%	21.9%	25.2%	27.3%
Underemployed workers	45,879	29,052	68,520	29,251	70,130	45,940
Unemployed	15,884	10,442	28,421	11,447	25,417	15,897
Available labor pool	**61,763**	**39,494**	**96,941**	**40,698**	**95,547**	**61,837**

Note: Rounding errors may be present. Based on May 2009 labor force data and 2009 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 9,758 complete responses were obtained. About 49 percent (4,758 respondents) were employed, of whom 1,157 stated that they were underemployed. Among the WDRs, underemployment ranged from 21.0 percent for Region 1 to 28.8 percent for Region 8. Region 4 has the most available labor, followed by Region 2, with the two regions accounting for 41.1 percent of the state's available labor pool. Among counties, Macon had the highest rate of underemployment at 38.0 percent, and Cullman had the lowest rate with 12.1 percent. Twenty-nine counties had underemployment rates above the state's 24.3 percent.

In 2009, 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, disability or other health concerns, and a lack of job opportunities in their area as the main reasons for their status. 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.
- More believe they are qualified for a better job.
- More would leave their current jobs for higher income.
- More are willing to commute longer and farther for a better job.
- Fewer are satisfied with their current jobs.
- More are willing to train for a better job even if they have to pay part or all of the cost.
- More have sought better jobs in the preceding quarter.
- They have slightly lower educational attainment
- The median age is the same.
- Fewer are married, male, or white.
- About the same share is Hispanic.

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 (76.7 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 (76.7 percent). 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 (76.2 percent vs. 64.1 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 strongly show that workers expect the government to bear at least part of the training cost. This expectation may result from worker awareness of government workforce programs that provide such assistance.

Table A.8 2009 Job Satisfaction and Willingness to Train (Percent)

Job Satisfaction					
	Completely Dissatisfied	Dissatisfied	Neutral	Satisfied	Completely Satisfied
Employed					
Overall	3.0	4.2	15.9	28.1	48.6
Earnings	9.8	10.8	21.6	27.0	30.4
Retention	4.8	5.3	12.5	20.1	55.7
Work	1.4	2.1	8.6	24.0	63.5
Hours	4.3	4.4	10.9	21.6	58.4
Shift	3.0	3.0	7.5	16.9	69.2
Conditions	3.2	4.7	13.5	26.7	51.6
Commuting Distance	4.8	5.3	12.3	15.5	61.6
Underemployed					
Overall	7.4	7.6	26.8	26.5	31.5
Earnings	20.1	20.1	24.2	20.7	14.5
Retention	9.3	9.1	17.2	20.2	42.5
Work	3.6	3.8	15.2	26.6	50.7
Hours	9.3	8.2	14.4	20.4	47.2
Shift	5.9	5.0	10.1	18.8	59.8
Conditions	6.3	8.4	17.4	28.1	39.8
Commuting Distance	6.0	6.4	12.1	17.6	57.6

Willingness to Train					
	Completely Unwilling	Unwilling	Neutral	Willing	Completely Willing
Employed					
For a new or better job	16.3	3.6	15.3	13.7	50.4
If paid by trainee	41.1	19.2	22.2	7.2	7.6
If paid by trainee and government	9.9	10.8	32.0	23.6	21.5
If paid by government	3.4	2.1	8.6	14.6	70.0
Underemployed					
For a new or better job	9.8	1.6	11.3	13.2	63.0
If paid by trainee	36.0	18.5	23.7	9.3	9.5
If paid by trainee and government	7.2	6.7	31.7	24.2	27.8
If paid by government	2.1	0.8	4.7	11.9	79.6

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 292,100 jobs in the third quarter of 2008 (Table A.9). Rounding out the top five industries by employment are retail trade, health care and social assistance, accommodation and food services, and educational services. These five industries provided 1,076,611 jobs, 57.1 percent of the state total. The average monthly wage across all industries in the state was $3,181. New hire monthly earnings averaged $1,987 or 62 percent of the average monthly wage. The highest average monthly wages were for mining at $5,088, utilities $5,022, and professional, scientific, and technical services $4,930. Accommodation and food services paid the least at $1,314. Mining had the highest average monthly new hire wages with $4,317. The professional, scientific, and technical services sector was next at $3,760, followed by utilities with $3,286. Accommodation and food services paid newly hired workers the least, $936.

Table A.9 Industry Mix (Third Quarter 2008)

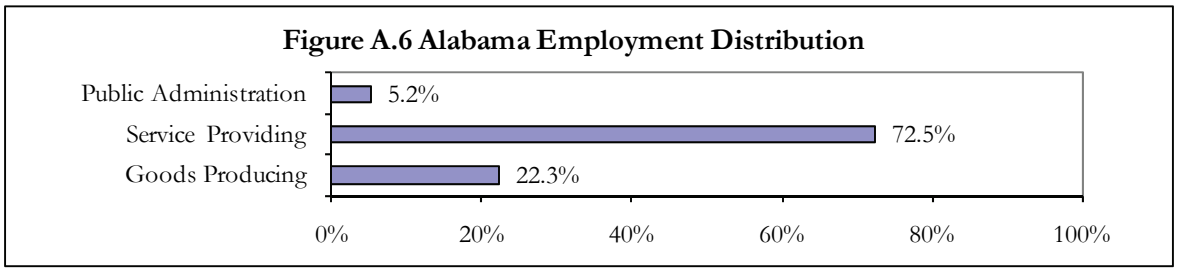
Industry by 2-digit NAICS Code	Total Employment	Share	Rank	Average Monthly Wage	Average Monthly New Hire Earnings
11 Agriculture, Forestry, Fishing and Hunting	12,135	0.64%	19	$2,762	$1,964
21 Mining	8,139	0.43%	20	$5,088	$4,317
22 Utilities	20,827	1.11%	17	$5,022	$3,286
23 Construction	108,096	5.74%	7	$3,435	$2,683
31-33 Manufacturing	292,072	15.50%	1	$3,806	$2,735
42 Wholesale Trade	81,990	4.35%	10	$4,199	$2,933
44-45 Retail Trade	243,710	12.93%	2	$2,174	$1,340
48-49 Transportation and Warehousing	56,191	2.98%	12	$3,262	$2,669
51 Information	28,176	1.50%	14	$3,860	$2,509
52 Finance and Insurance	74,119	3.93%	11	$4,227	$2,901
53 Real Estate and Rental and Leasing	27,636	1.47%	15	$2,912	$1,958
54 Professional, Scientific, and Technical Services	94,757	5.03%	9	$4,930	$3,760
55 Management of Companies and Enterprises	15,834	0.84%	18	$4,059	$2,404
56 Administrative and Support and Waste Management and Remediation Services	109,603	5.82%	6	$2,242	$1,596
61 Educational Services	151,741	8.05%	5	$3,187	$1,664
62 Health Care and Social Assistance	231,119	12.27%	3	$3,116	$2,145
71 Arts, Entertainment, and Recreation	22,272	1.18%	16	$1,689	$1,072
72 Accommodation and Food Services	157,969	8.38%	4	$1,314	$936
81 Other Services (Except Public Administration)	49,317	2.62%	13	$2,460	$1,719
92 Public Administration	98,632	5.23%	8	$3,178	$1,884
ALL INDUSTRIES	1,884,333	100.00%		$3,181	$1,987

Note: Rounding errors may be present.

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

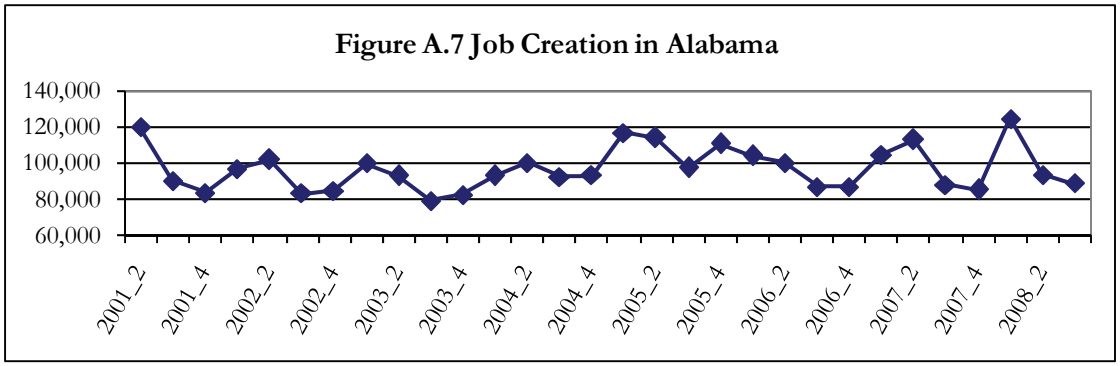
The leading employers were not the highest paying sectors. Indeed, just two of the top five employers paid wages above the state average; manufacturing and educational services. The smallest employer, mining, paid the highest wages. By broad industry classification, service providing industries generated 72.5 percent of total state jobs in third quarter 2008 (Figure A.6). Goods

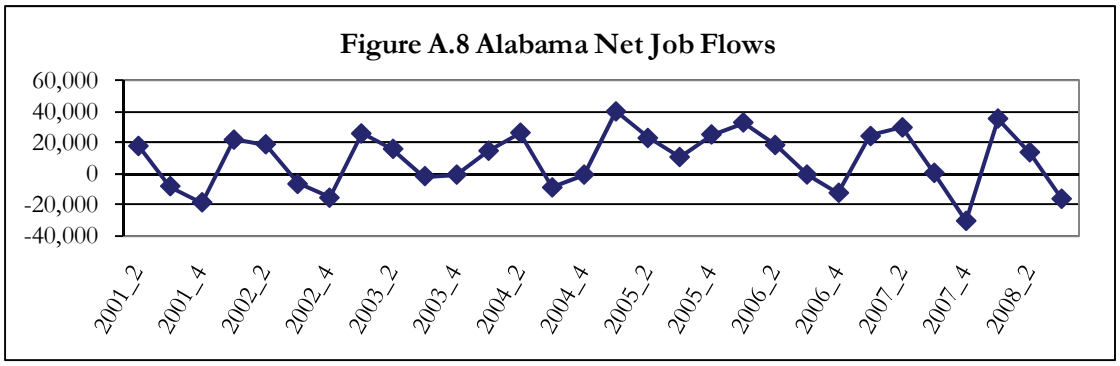
producing industries were next with 22.3 percent and public administration accounted for 5.2 percent. The distribution is for all nonagricultural jobs and there is significant variation by WDR.



Job Creation and Net Job Flows

Quarterly job creation averaged 97,135 from second quarter 2001 to third quarter 2008. Figure A.7 shows job creation peaked in the first quarter of 2008 at 124,691, but has been declining since. Net job flows averaged 9,336 per quarter in the same period (Figure A.8). Quarterly net job flows have ranged from a loss of about 30,800 to a gain of roughly 40,700. Net job flows clearly fluctuate greatly, but have also been declining since the first quarter of 2008. 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, 780 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 four of the five largest employment sectors identified earlier (Table A.9): manufacturing; retail trade; health care and social assistance; and educational 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 highest earning occupations. In general, these occupations are in health, management, legal, 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 $82,690 for Medical and Health Services Managers and the highest is $212,750 for Surgeons.

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

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

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	212,750
Oral and Maxillofacial Surgeons	80	90	1.18	0	212,370
Orthodontists	100	110	0.96	0	210,870
Anesthesiologists	760	950	2.26	35	199,210
Psychiatrists	200	240	1.84	10	197,910
Dentists, All Other Specialists	70	80	1.34	0	187,400
Internists, General	1,000	1,160	1.50	35	183,010
Pediatricians, General	690	830	1.86	30	171,100
Chief Executives	4,420	4,770	0.76	155	157,290
Dentists, General	1,810	2,010	1.05	55	156,370
Physicians and Surgeons, All Other	3,080	3,770	2.04	125	155,570
Family and General Practitioners	1,180	1,400	1.72	40	142,670
Chiropractors	730	870	1.77	25	126,950
Podiatrists	160	170	0.61	5	124,270
Admin. Law Judges, Adjudicators, and Hearing Officers	100	110	0.96	0	117,890
Lawyers	8,180	9,460	1.46	285	116,350
Pharmacists *	4,380	5,430	2.17	180	108,160
Engineering Managers	2,790	3,260	1.57	100	107,820
Physicists	220	250	1.29	10	106,910
Personal Financial Advisors *	**1,780**	**2,450**	**3.25**	**80**	**105,460**
Agricultural Engineers	160	170	0.61	5	103,590
Natural Sciences Managers	180	200	1.06	10	101,330
Marketing Managers	1,440	1,630	1.25	50	100,640
Computer and Information Systems Managers	2,400	2,920	1.98	90	98,130
Computer and Information Scientists, Research	460	550	1.80	20	97,850
Engineers, All Other	3,950	4,550	1.42	105	96,590
Aerospace Engineers *	3,830	4,680	2.02	160	96,170
Mathematicians	30	40	2.92	0	95,630
Sales Managers	3,380	3,830	1.26	120	95,550
Purchasing Managers	1,000	1,110	1.05	40	94,310
Optometrists	510	590	1.47	20	93,920
Financial Managers	5,530	6,250	1.23	150	93,130
General and Operations Managers	29,620	31,430	0.59	895	92,330
Health Specialties Teachers, Postsecondary *	1,230	1,570	2.47	55	91,950
Economists	180	190	0.54	5	91,720
Education Administrators, Postsecondary	2,660	3,160	1.74	125	90,850
Human Resources Managers, All Other	780	890	1.33	25	90,220
Law Teachers, Postsecondary	100	130	2.66	5	90,120
Managers, All Other	12,290	13,290	0.79	345	89,770
Computer Hardware Engineers	1,140	1,370	1.85	60	89,520
Electronics Engineers, Except Computer	1,630	1,810	1.05	60	88,740
Mining and Geological Engineers, Including Mining Safety Engineers	NA	NA	0.47	5	86,490
Biological Science Teachers, Postsecondary *	**870**	**1,170**	**3.01**	**45**	**85,790**
Compensation and Benefits Managers	370	420	1.28	10	85,770
Chemical Engineers	690	820	1.74	35	84,600
Air Traffic Controllers	220	280	2.44	10	84,420
Computer Software Engineers, Systems Software *	**3,400**	**4,670**	**3.22**	**175**	**84,190**
Psychologists, All Other	100	110	0.96	0	83,770
Materials Scientists	40	40	0.00	0	83,070
Medical and Health Services Managers *	2,940	3,570	1.96	120	82,690

Note: Employment and salaries data are rounded to the nearest 10; openings to the nearest 5. The salary data provided are based on the May 2008 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

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

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

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

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

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

Mathematics — Using mathematics to solve problems.

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

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

Science — Using scientific rules and methods to solve problems.

Speaking — Talking to others to convey information effectively.

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

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

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

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

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

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

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

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

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

Coordination — Adjusting actions in relation to others' actions.

Instructing — Teaching others how to do something.

Negotiation — Bringing others together and trying to reconcile differences.

Persuasion — Persuading others to change their minds or behavior.

Service Orientation — Actively looking for ways to help people.

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

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

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

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

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

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

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

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

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

Operation and Control — Controlling operations of equipment or systems.

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

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

Programming — Writing computer programs for various purposes.

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

Repairing — Repairing machines or systems using the needed tools.

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

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

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

Table A.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	74
Active Listening	78	75	70
Critical Thinking	78	63	82
Learning Strategies	23	30	12
Mathematics	18	20	34
Monitoring	33	28	34
Reading Comprehension	88	80	80
Science	13	15	36
Speaking	73	65	60
Writing	58	38	46
Complex Problem Solving Skills			
Complex Problem Solving	18	20	34
Resource Management Skills			
Management of Financial Resources	5	3	12
Management of Material Resources	0	0	2
Management of Personnel Resources	5	0	12
Time Management	63	55	38
Social Skills			
Coordination	28	35	24
Instructing	50	48	14
Negotiation	0	0	10
Persuasion	3	0	12
Service Orientation	40	35	10
Social Perceptiveness	35	38	12
Systems Skills			
Judgment and Decision Making	33	23	62
Systems Analysis	8	5	4
Systems Evaluation	5	0	18
Technical Skills			
Equipment Maintenance	5	8	0
Equipment Selection	15	18	12
Installation	8	10	0
Operation and Control	3	3	6
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	8
Troubleshooting	18	20	8

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, resource management, systems, and operations analysis 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 two 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	17
Doctoral Degree	1	2	4
Master's Degree	5	4	3
Work Experience Plus a Bachelor's or Higher Degree	3	2	14
Bachelor's Degree	15	11	10
Associate Degree	4	6	0
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

From a 2006 base, a worker surplus of about 79,000 for 2016 and a worker shortfall of almost 116,000 for 2025 are expected (Table A.18). A focus on worker skills must be a priority through 2016, after which both skills and the expected shortfall must be priorities for 2025. Worker shortfalls for critical occupations will need to be addressed through 2025.

Table A.18 Expected Worker Shortfall

	2006-2016	2006-2025
Total population growth (percent)	9.3	16.9
Age 20-64 population growth (percent)	8.0	9.4
Job growth (percent)	4.3	14.7
Worker shortfall (percent)	-3.6	5.3
Worker shortfall (number)	-79,054	115,626

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

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

Improving education is vital because a highly educated and productive workforce is a critical economic development asset. The educational and training requirements of high-demand, fast-growing, and high-earning occupations show the significance of education in developing the workforce of the future. The importance of basic skills 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 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 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, residents of sparsely populated areas, and those on active parole. These populations are often outside of the mainstream economy and are in poverty. They usually have difficulty finding work because they have low levels of educational attainment, lack occupational skills, or face geographic or other barriers. They are a potential human resource, but investment in training, transportation, 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 partially served by in-commuting. However, new residents can be attracted using the high-paying job opportunities from the state's numerous economic development successes. Investment in amenities and infrastructure may be needed to support such growth. In-migration is generally more beneficial to the state than in-commuting since it grows the economy faster and adds to the tax base.

Policies that facilitate and encourage older worker participation are needed as older workers can help meet the state's workforce challenge. Such policies could be related to income taxation, job flexibility, and retirement programs. As the share of older people in the population is projected to increase (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 (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.