State of the Workforce Report VIII:
Jefferson County

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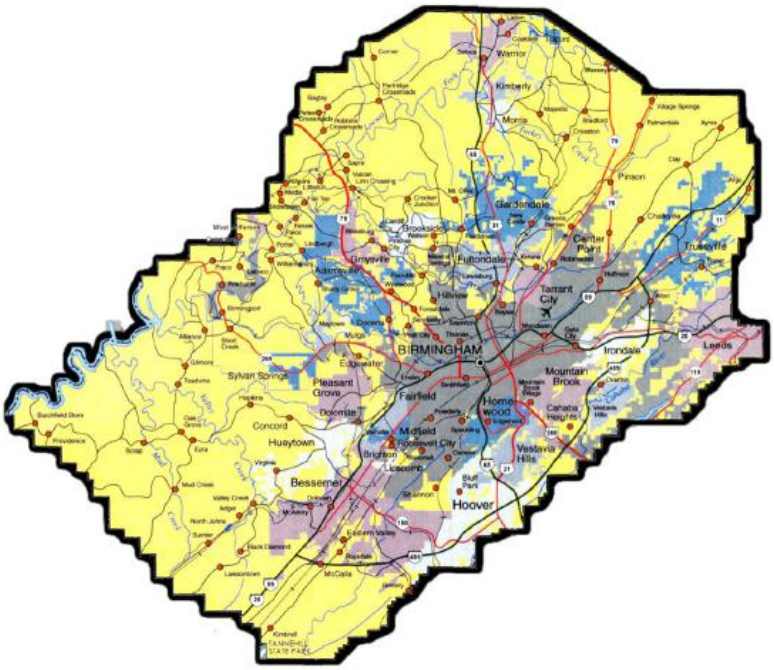

March 2014

Center for Business and Economic Research
Culverhouse College of Commerce

University of Alabama Center for Economic Development

Institute for Social Science Research

THE UNIVERSITY OF ALABAMA

State of the Workforce Report VIII: Jefferson County

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by

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Contents

Summary

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

- Jefferson County had a 5.3 percent unemployment rate in December 2013, with 15,852 unemployed. An underemployment rate of 26.1 percent for 2013 means that the county has an 89,790-strong available labor pool that includes 73,938 underemployed workers who are looking for better jobs but are less willing to commute farther and longer for such jobs.

- Congestion worsened in 2013 and is a major concern as the county economy recovers from the recent recession. From 2005 to 2011, net in-commuting rose from 56,586 to 81,502 while the total number of in- and out-commuters increased to 200,014 from 181,406. This, combined with considerable commuting within the county, suggests a strong need for constant maintenance and development of transportation infrastructure and systems to ensure that the movement of workers and goods is not impeded.

- By sector the top five employers in the county are health care and social assistance; retail trade; educational services; accommodation and food services; and manufacturing. In fourth quarter 2012 these five industries provided 171,290 jobs, 50.2 percent of the county total. Of these leading employers two—manufacturing and health care and social assistance—paid more than the county's $4,018 average monthly wage. Economic development should continue to diversify and strengthen the county's economy by retaining, expanding, and attracting more high-wage providing industries; workforce development should focus on preparing workers for these industries.

- On average 16,168 jobs were created per quarter from second quarter 2001 to fourth quarter 2012; quarterly net job flows averaged 699. 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; Licensed Practical and Licensed Vocational Nurses; Home Health Aides; Lawyers; and Personal Care Aides.

- The top five fast-growing occupations are Personal Care Aides; Home Health Aides; Occupational Therapy Assistants; Helpers—Pipelayers, Plumbers, Pipefitters, and Steamfitters; and Rehabilitation Counselors.

- The top 50 high-earning occupations are mostly in health, management, business, and engineering fields and have a minimum salary of $81,644. Seven of the top 10 are health occupations.

- Of the top 40 high-demand, 20 fast-growing, and 50 high-earning occupations, eight occupations are in high-demand and high-earning and 10 are both high-demand and fast-growing.

- Of the county's 725 occupations, 88 are expected to decline over the 2010 to 2020 period, with 20 sharply declining by at least six percent and losing a minimum of 20 jobs each. Education and training for these 20 occupations should slow accordingly.

- Skill and education requirements for jobs keep rising. Educational and training requirements of high-demand, fast-growing, and high-earning occupations demonstrate the importance of education in developing the future workforce. In the future, more jobs will require 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. For Jefferson County the pace of training needs to increase for systems, complex problem solving, and social skills. The scale of training should be raised for basic and social skills. Ideally, all high school graduates should possess basic skills so that postsecondary and higher education can focus on other and more complex skills. Employers should be an integral part of planning for training as they can help identify future skill needs and any existing gaps.

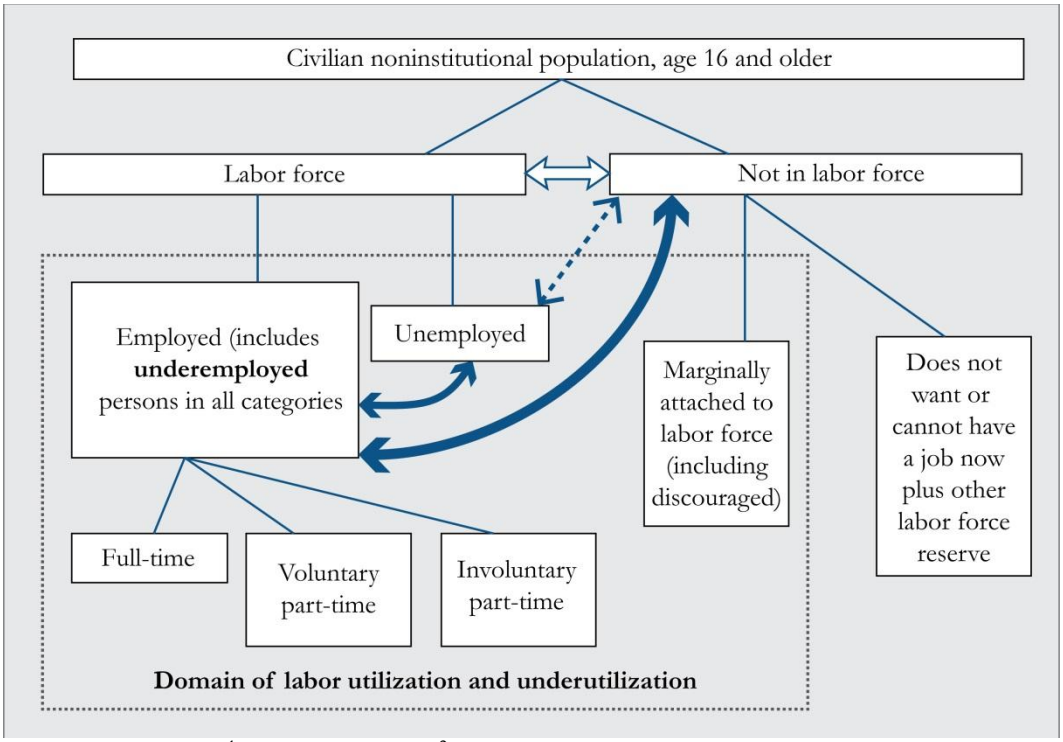
- Job growth is expected to exceed population and labor force growth through 2030. From a 2010 base, worker shortfalls of about 41,500 and 76,500 are estimated by 2020 and 2030, respectively. A focus on both worker skills and the expected shortfalls, especially for critical occupations, must be a top priority through 2030. Strategies to address skill needs and worker shortfalls could 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 and younger residents; (6) facilitation of in-commuting; and (7) encouragement of older worker participation in the labor force.

- 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 county as well as raise additional local (county and city) tax revenues. This is important, especially for a county that has declining population and labor force growth rates.

- Together, workforce development and economic development can build a strong, well-diversified Jefferson County economy. Indeed, one cannot achieve success without the other.

Labor Utilization and Supply Flows



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

The chart above presents labor utilization and supply flows that explain labor market dynamics in view of recent study findings. The civilian noninstitutional population age 16 and above comprises of participants in the labor force and nonparticipants. The labor force is made of employed and unemployed persons; the unemployed do not have a job but are actively searching for work. Employed persons include fully employed and underemployed persons in all categories of work (full-time, voluntary part-time, and involuntary part-time). Nonparticipants in the labor force include retirees (voluntary and involuntary), people who do not want to or cannot work for various reasons (e.g., disability, caring for family members, in school or training, etc.), discouraged workers, and other labor force reserves. It has been suggested that a subgroup of nonparticipants referred to as the "waiting group" is more likely than the rest of the nonparticipants to take a job if wages and conditions are satisfactory, but do not actively search for work. New evidence has shown that between January 2003 and August 2013, the flow of nonparticipants into employment is 1.6 times that of unemployed persons transitioning into employment, which may be due to the presence of the waiting group. Nonparticipant flows to employment are larger in services, management, and professional occupations while unemployed flows to employment are higher in physically intensive occupations such as construction workers and miners. Industry effects should vary by the type and number of occupations they contain. This finding enhances the common understanding of labor market dynamics and influences workforce availability and skills gap analyses.

[1] Addy, S.N., Bonnal, M., and Lira, C. (2012). Towards a More Comprehensive Measure of Labor Underutilization: The Alabama Case, *Business Economics*, vol. 47(3).
[2] Canon, M.E., Kudlyak, M., and Reed, M. (2014). Not Everyone Who Joins the Ranks of the Employed was "Unemployed", *The Regional Economist*, January.

Workforce Supply

Labor Force Activity

The labor force includes all persons in the civilian noninstitutional population 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. discouraged workers, students, retirees, and the disabled). Table J.1 shows labor force information on Jefferson County for 2013 and for December 2013. Alabama labor force information is available from the Labor Market Information (LMI) Division of the Alabama Department of Labor. LMI compiles data in cooperation with the U.S. Bureau of Labor Statistics. The county had an unemployment rate of 6.1 percent for 2013 and recorded a low of 5.3 percent in December 2013, which is below Alabama's 5.7 percent.

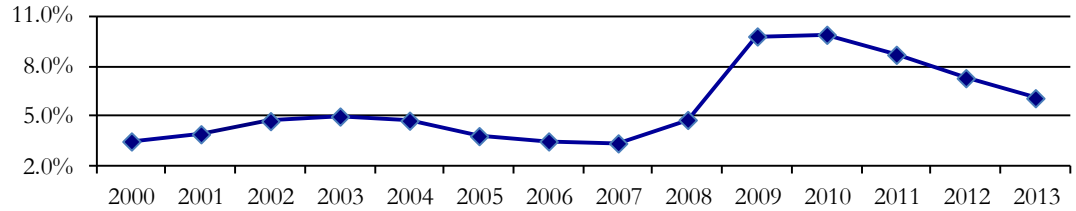
Table J.1 Jefferson County Labor Force Information

	2013 Annual Average			
	Labor Force	Employed	Unemployed	Rate (%)
Jefferson County	303,678	285,058	18,620	6.1
Alabama	2,150,224	2,008,995	141,229	6.6
United States	155,389,000	43,929,000	11,460,000	7.4
	December 2013			
	Labor Force	Employed	Unemployed	Rate (%)
Jefferson County	298,707	282,855	15,852	5.3
Alabama	2,110,725	1,990,418	120,307	5.7
United States	154,408,000	144,423,000	9,984,000	6.5

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

Annual unemployment rates for 2000 to 2013 are shown in Figure J.1. The county's unemployment rose from 3.5 percent in 2000 to 5.0 percent in 2003 primarily because of the 2001 national economic recession. Employment gains since 2005, resulting from successful economic development efforts at both state and local levels, took unemployment to a low of 3.4 percent in 2007. However, the recent recession raised the county unemployment rate to a high of 9.9 percent in 2010. The rates declined to 6.1 percent in 2013 and are dropping although the effects of the recession still persist. Year-to-date monthly labor force data point to a slightly lower county unemployment rate in 2014 than in 2013.

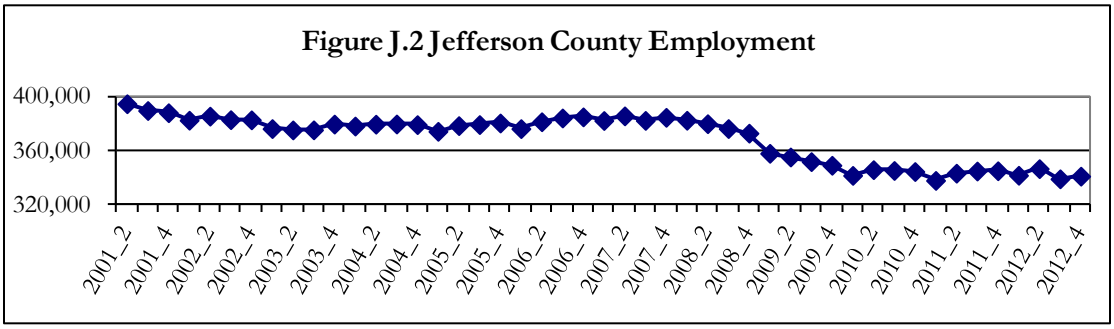
Figure J.1 Jefferson County Unemployment Rate



Source: Alabama Department of Labor.

Nonagricultural employment, which measures jobs located in the county, averaged 369,427 quarterly from the second quarter of 2001 to the fourth quarter of 2012 (Figure J.2). The number of jobs is yet to show any significant improvement from its downward trend since the fourth quarter of 2007. By the fourth quarter of 2012, employment was still near its lowest levels in the entire period.

Figure J.2 Jefferson County Employment



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

Table J.2 shows worker distribution by age in Jefferson County for the fourth quarter of 2012. The county's workforce is slightly older than the state's; workers age 55 and over are 20.5 percent of the nonagricultural employment versus 20.0 percent for the state. Those who are age 65 and over constitute 4.5 percent, the same as the state average. Labor force participation of younger residents must increase to meet long term occupational projections for growth and replacement or older workers may have to work longer.

Table J.2 Workers by Age Group (Fourth Quarter 2012)

Age Group	Nonagricultural Employment	
	Number	Percent
14-18	4,266	1.2
19-24	34,804	10.2
25-34	78,562	23.0
35-44	76,867	22.5
45-54	76,865	22.5
55-64	54,863	16.1
65+	15,221	4.5
55 and over total	70,084	20.5
Total all ages	341,448	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

From 2005 to 2011, net in-commuting of workers to Jefferson County rose from 56,586 to 81,502 (44 percent). The total number of people who commuted into and out of the county for work increased from 181,406 to 200,014 in the same period (Table J.3). Average commute time went up in 2013 from the previous year. This is a sign that congestion worsened in the county. The increased commuting within the county means that that congestion will remain a major problem in some areas, especially within the Birmingham-Hoover metropolitan area. As the county economy recovers from the recent recession, congestion is likely to worsen. Thus, county transportation infrastructure and systems must be maintained and developed to ensure that the flow of goods and movement of workers are not interrupted.

Table J.3 Commuting Patterns in Jefferson County

Year	County Inflow	County Outflow
	Number	Number
2005	118,996	62,410
2006	118,401	69,088
2007	134,799	63,326
2008	136,685	66,672
2009	137,007	61,316
2010	138,058	60,252
2011	140,758	59,256

	Percent of workers						
Average commute time (one-way)	**2005/2006**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Less than 20 minutes	45.7	50.2	44.7	51.8	52.7	46.0	43.2
20 to 40 minutes	39.0	37.2	43.2	38.3	35.3	41.7	35.8
40 minutes to an hour	10.8	7.2	7.5	5.9	8.3	5.2	6.8
More than an hour	0.7	1.7	1.5	1.6	2.1	2.8	4.6
Average commute distance (one-way)	**2005/2006**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Less than 10 miles	37.5	42.9	39.2	46.2	46.4	41.2	38.4
10 to 25 miles	43.9	39.0	44.6	38.9	36.3	41.2	37.1
25 to 45 miles	10.0	12.4	12.8	10.9	11.4	12.4	15.1
More than 45 miles	3.3	4.3	2.3	1.2	2.5	2.9	6.3

Note: Rounding errors may be present.

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

Population

Jefferson County's population shrank by 0.5 percent from 2000 to 2010, while the state had 7.5 percent growth (Table J.4). Table J.5 shows Jefferson County's population counts, estimates, and projections by age group. The population aged 65 and over continues to grow rapidly after 2010, as the first of the baby boom generation turned 65 in 2011. Growth of the major working age group (20-64) and youth (0-19) will decline through 2030. This poses a challenge for workforce development. Employment growth is expected to outpace labor force growth in the medium to long term. This, together with significant in-commuting, presents communities with the opportunity to attract new residents. However, growing the population may require more investment in amenities and infrastructure.

Table J.4 Jefferson County Population

	1990 Census	2000 Census	2010 Census	Change 2000-2010	% Change 2000-2010
Jefferson County	651,525	662,047	658,466	-3,581	-0.5
Alabama	4,040,587	4,447,100	4,779,736	332,636	7.5
United States	248,709,873	281,421,906	308,745,538	27,323,632	9.7

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

Table J.5 Population by Age Group and Projections

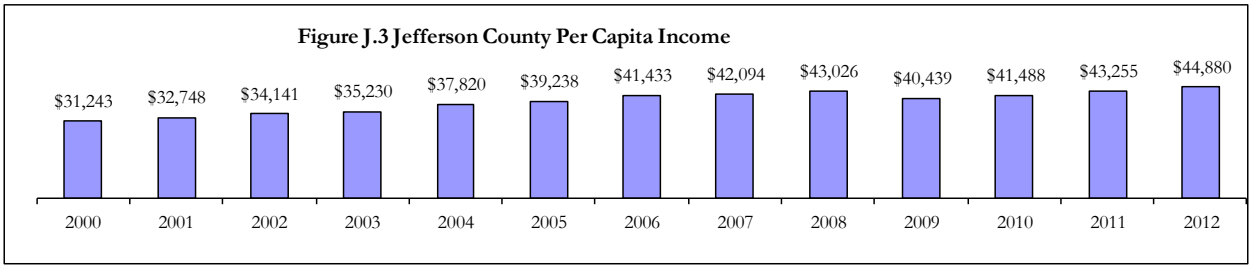
Age Group	2000	2010	2020	2030
0-19	182,231	172,834	172,471	172,189
20-24	45,580	46,405	41,525	41,689
25-29	47,399	48,533	45,117	41,834
30-34	45,466	44,764	47,096	42,199
35-39	50,592	42,291	45,990	43,266
40-44	53,081	41,302	41,057	43,835
45-49	49,873	46,460	39,089	43,064
50-54	41,596	48,773	38,124	38,499
55-59	30,607	44,702	42,162	36,110
60-64	25,337	35,959	42,990	34,219
65+	90,285	86,443	106,419	126,621
20-64 Total	389,531	399,189	383,150	364,715
Total Population	662,047	658,466	662,040	663,525
Change from 2010				
0-19			-0.2%	-0.4%
20-64			-4.0%	-8.6%
Total Population			0.5%	0.8%

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

Per Capita Income

Per capita income (PCI) in Jefferson County was at $44,880 in 2012 (Figure J.3), up 44 percent from 2000, and $8,954 or about 25 percent above the state average of $35,926.

Figure J.3 Jefferson County Per Capita Income

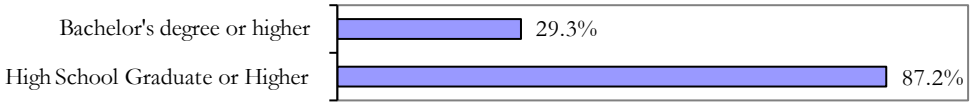


Source: U.S. Bureau of Economic Analysis and Center for Business and Economic Research, The University of Alabama.

Educational Attainment

Educational attainment in 2008 to 2012 of Jefferson County residents who were 25 years old and over is shown in Figure J.4 and Table J.6. About 87 percent graduated from high school and 29 percent held a bachelor's or higher degree. This is above the state's average educational attainment. Educational attainment is important as skills rise with education and high-wage jobs for the 21st century demand more skill sets.

Figure J.4 Jefferson County Educational Attainment, 2008-2012



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

Table J.6 Educational Attainment of Population 25 Years and Over, 2008-2012

	Jefferson County
Total	439,531
No schooling completed	3,741
Nursery to 4th grade	1,308
5th and 6th grade	4,220
7th and 8th grade	7,447
9th grade	7,315
10th grade	10,950
11th grade	13,887
12th grade, no diploma	7,179
High school graduate/equivalent	120,355
Some college, less than 1 year	23,305
Some college, 1+ years, no degree	78,806
Associate degree	32,308
Bachelor's degree	79,583
Master's degree	31,709
Professional school degree	11,646
Doctorate degree	5,772

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

The underemployed present a significant labor pool 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.

Jefferson County had an underemployment rate of 26.1 percent in 2013. Applying this rate to December 2013 labor force data means that 73,938 workers were underemployed (Table J.7). Adding the unemployed gives a total available labor pool of 89,790 for the county. This is about six times the number of unemployed and is a more realistic measure of the available labor pool in the county. Prospective employers must be able to offer the underemployed higher wages, better benefits or terms of employment, or some other incentives to induce them to change jobs. The underemployed workers are less willing to commute farther and longer for a better job. For the one-way commute, 30.0 percent are prepared to travel 20 or more minutes longer and 22.5 percent will go 20 or more extra miles.

Table J.7 Underemployed and Available Labor

	Jefferson County
Labor Force	298,707
Employed	282,855
Underemployment rate	26.1%
Underemployed workers	73,938
Unemployed	15,852
Available labor pool	**89,790**

Note: Rounding errors may be present. Based on December 2013 labor force data and the 2013 underemployment rate.
Source: Center for Business and Economic Research, The University of Alabama and Alabama Department of Labor.

Underemployment rates for counties, Workforce Development Regions (WDRs), and the state were determined from an extensive survey on the state's workforce. A total of 369 complete responses were obtained from Jefferson County. About 48 percent (176 respondents) were employed, of whom 46 stated that they were underemployed. Low wages at available jobs, a lack of job opportunities in their area, and other family or personal obligations were the primary reasons given

for being underemployed. Ongoing economic development efforts can help in this regard. Nonworkers cite retirement, disability or other health concerns, social security limitations, 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. Indeed a recent study found that the flow of labor force nonparticipants to employment status was 60 percent more than that of unemployed workers who gain employment.[3] This implies that the county's available labor pool could be larger than estimated in this report.

A comparison of underemployed workers to the overall workforce in Jefferson County shows that:

- Fewer work full-time and more of the part-timers would like to work full-time.
- A bigger share holds multiple jobs.
- They have shorter commute times and distances.
- More are life, physical, and social science workers; community and social services workers; education, training, and library staff; healthcare technicians and practitioners; healthcare support workers; salespersons; office and administrative support staff; farm, fishing, and forestry workers; installation, maintenance, and repair workers; production workers; and transportation and material moving workers.
- They have shorter job tenure and earn less.
- More are in agriculture, forestry, fishing, and hunting; construction; wholesale trade; retail trade; educational services; health care and social services; and arts, entertainment, and recreation industries.
- Fewer believe their jobs fit well with their education and training, skills, and experience.
- More believe they are qualified for a better job.
- More would leave their current jobs for higher income, even for as little as five percent more.
- They are less willing to extend their commute for a better job.
- Fewer are satisfied with their current jobs.
- More have sought better jobs in the preceding quarter.
- More are willing to train for a better job but not if they have to pay the full cost of training.
- Fewer are married and fewer are male.
- Their median age, 49, is one year younger.
- More are Hispanic.
- Fewer are white and more African-American, or other nonwhite ethnic groups.
- They have higher educational attainment.

Table J.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 of the county's workers (76.7 percent) are satisfied or completely satisfied with their jobs. Workers are most satisfied with the work they do and least satisfied with their earnings. Less than half (47.8 percent) of underemployed workers are satisfied or completely satisfied with their jobs. The underemployed are also most satisfied with the work they do, but very dissatisfied with their earnings.

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

Workers are generally willing to train for a new or better job, with the underemployed being much more willing (75.0 percent vs. 62.0 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. Underemployed workers are more willing to train for the new or better job unless they have to pay the full cost of training. The results 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 J.8 2013 Job Satisfaction and Willingness to Train (Percent)

	Job Satisfaction				
	Completely Dissatisfied	Dissatisfied	Neutral	Satisfied	Completely Satisfied
Employed					
Overall	6.3	4.6	11.9	27.8	48.9
Earnings	13.1	10.2	18.2	29.0	29.6
Retention	6.8	5.1	8.5	21.0	56.3
Work	1.1	3.4	8.0	21.6	65.9
Hours	4.6	3.4	12.5	15.3	64.2
Shift	6.3	4.0	8.5	15.3	65.9
Conditions	4.6	5.7	10.8	25.0	54.0
Commuting Distance	4.0	5.7	9.7	16.5	63.6
Underemployed					
Overall	17.4	8.7	23.9	21.7	26.1
Earnings	37.0	19.6	23.9	6.5	13.0
Retention	17.4	10.9	15.2	17.4	34.8
Work	4.4	4.4	15.2	26.1	50.0
Hours	13.0	4.4	8.7	17.4	56.5
Shift	13.0	6.5	10.9	15.2	54.4
Conditions	15.2	10.9	13.0	26.1	34.8
Commuting Distance	4.4	8.7	17.4	17.4	50.0

	Willingness to Train				
	Completely Unwilling	Unwilling	Neutral	Willing	Completely Willing
Employed					
For a new or better job	16.8	6.6	13.9	7.3	54.7
If paid by trainee	46.5	13.2	23.7	5.3	10.5
If paid by trainee and government	17.5	8.8	36.0	17.5	18.4
If paid by government	7.9	2.6	10.5	14.9	64.0
Underemployed					
For a new or better job	7.5	5.0	10.0	7.5	67.5
If paid by trainee	46.0	10.8	27.0	0.0	13.5
If paid by trainee and government	10.8	10.8	37.8	13.5	24.3
If paid by government	0.0	2.7	2.7	10.8	83.8

Note: Rounding errors may be present.

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

Workforce Demand

Industry Mix

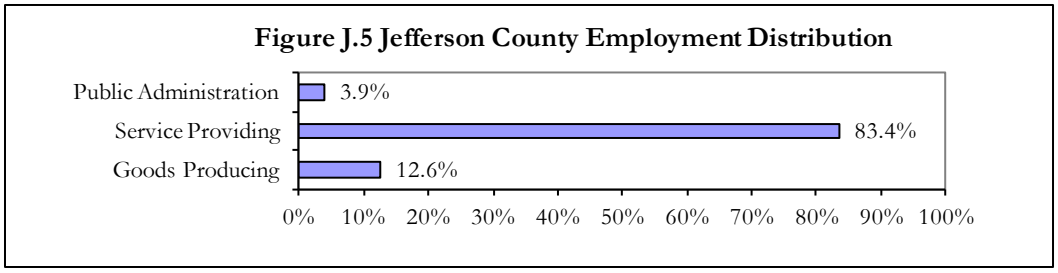
The health care and social assistance sector was the lead employer with 50,795 jobs in the fourth quarter of 2012 (Table J.9). Rounding out the top five industries by employment are retail trade; educational services; accommodation and food services; and manufacturing. These five industries provided 171,290 jobs, 50.2 percent of the Jefferson County total. The average monthly wage across all industries in the county was $4,018; two leading employers—manufacturing and health care and social assistance—paid more. New hire monthly earnings averaged $2,442, about 61 percent of the average monthly wage. The highest average monthly wages were for utilities at $6,555, mining $6,030, and professional, scientific, and technical services at $5,998. Accommodation and food services paid the least at $1,628. Mining had the highest average monthly new hire wages with $5,699, followed by utilities at $5,371, and professional, scientific, and technical services $4,121. Arts, entertainment, and recreation paid newly hired workers the least, $1,117.

Table J.9 Industry Mix (Fourth Quarter 2012)

Industry by 2-digit NAICS Code	Total Employment	Share	Rank	Average Monthly Wage	Average Monthly New Hire Earnings
11 Agriculture, Forestry, Fishing and Hunting	83	0.02%	20	$4,206	$3,592
21 Mining	1,799	0.51%	19	$6,030	$5,699
22 Utilities	5,379	1.58%	17	$6,555	$5,371
23 Construction	16,863	4.94%	10	$4,723	$3,376
31-33 Manufacturing	24,496	7.17%	5	$5,004	$3,345
42 Wholesale Trade	20,289	5.94%	8	$5,267	$3,377
44-45 Retail Trade	41,413	12.13%	2	$2,431	$1,421
48-49 Transportation and Warehousing	11,183	3.28%	12	$3,704	$2,441
51 Information	8,319	2.44%	14	$5,500	$3,516
52 Finance and Insurance	23,771	6.96%	6	$5,475	$3,696
53 Real Estate and Rental and Leasing	5,391	1.58%	16	$4,132	$2,931
54 Professional, Scientific, and Technical Services	19,312	5.66%	9	$5,998	$4,121
55 Management of Companies and Enterprises	7,745	2.27%	15	$4,886	$3,207
56 Administrative and Support and Waste Management and Remediation Services	22,777	6.67%	7	$2,488	$1,795
61 Educational Services	27,878	8.16%	3	$3,627	$2,629
62 Health Care and Social Assistance	50,795	14.88%	1	$4,054	$2,912
71 Arts, Entertainment, and Recreation	3,445	1.01%	18	$2,104	$1,117
72 Accommodation and Food Services	26,708	7.82%	4	$1,628	$1,155
81 Other Services (Except Public Administration)	10,372	3.04%	13	$3,400	$1,967
92 Public Administration	13,429	3.93%	11	$4,079	$2,496
ALL INDUSTRIES	**341,448**	**100.00%**		**$4,018**	**$2,442**

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

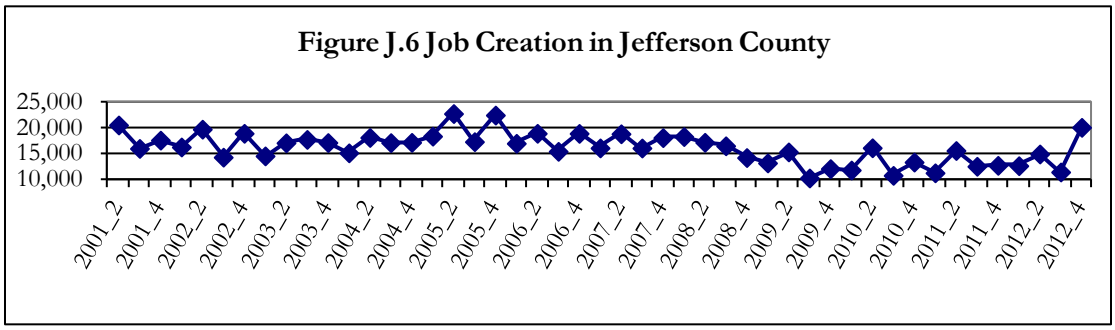
By broad industry classification, service providing industries provided 83.4 percent of all nonagricultural jobs in the county in fourth quarter 2012 (Figure J.5). Goods producing industries were next with 12.6 percent and public administration accounted for 3.9 percent.

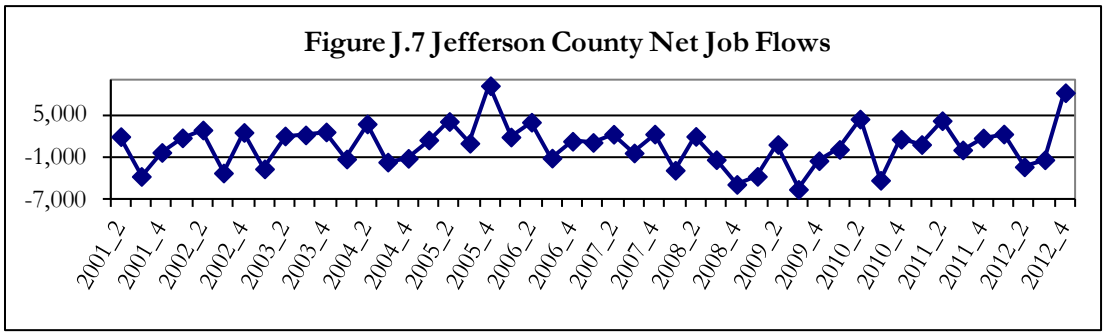


Source: Alabama Department of Labor and U.S. Census Bureau.

Job Creation and Net Job Flows

On average, 16,168 jobs were created per quarter from second quarter 2001 to fourth quarter 2012 (Figure J.6); quarterly net job flows averaged 699 (Figure J.7). Both job creation and net job flows fluctuated considerably and jumped significantly in the fourth quarter of 2012. Quarterly net job flows have ranged from a loss of 5,479 to a gain of 9,138. Job creation refers to the number of new jobs that are created either by new area businesses or through the expansion of existing firms. Net job flows reflect the difference between current and previous employment at all businesses.





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

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

Jefferson County has a total of 725 single occupations. Table J.10 shows the 40 occupations that are expected to be in high-demand, ranked by projected average annual job openings over the 2010 to 2020 period. Many of these occupations are common to the largest employment sector identified earlier (Table J.9): health care and social assistance. Thus, this sector will continue to dominate employment in the county.

The top five high-demand occupations are Registered Nurses; Licensed Practical and Licensed Vocational Nurses; Home Health Aides; Lawyers; and Personal Care Aides. Ten of the high-demand occupations are also fast-growing. This means that these 10 occupations have a minimum annual growth rate of 3.33 percent, much faster than the county and state occupational growth rates of 1.16 percent and 1.30 percent, respectively.

The 20 fastest growing occupations ranked by projected growth of employment are listed in Table J.11. Most of these occupations are related to health care suggesting that the health care and social assistance industry will continue to be a major employer in the county. The top five fast-growing occupations are Personal Care Aides; Home Health Aides; Occupational Therapy Assistants; Helpers-—Pipelayers, Plumbers, Pipefitters, and Steamfitters; and Rehabilitation Counselors.

Table J.12 shows the top 50 highest earning occupations in Jefferson County. These occupations are mainly in health, management, business, and engineering fields. Seven of the top 10 listed high-earning occupations are health occupations and two are in management. 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 selected high-earning occupations are generally not fast-growing or in high-demand. Indeed, none of the occupations in the selected 40 high-demand, 20 fast-growing, and 50 high-earning jobs belong to all three categories. Eight occupations are both high-earning and in high-demand (Table J.10).

Of the county's 725 single occupations, 88 are expected to decline over the 2010 to 2020 period. Employment in the 20 sharpest-declining occupations will fall by at least six percent, with each losing a minimum of 20 jobs over the period (Table J.13). No efforts should be made to sustain these occupations because they are declining as a result of structural changes in the economy of the county.

Table J.10 Selected High-Demand Occupations (Base Year 2010 and Projected Year 2020)

Occupation	Average Annual Job Openings		
	Total	Due to Growth	Due to Separations
Registered Nurses	520	295	225
Licensed Practical and Licensed Vocational Nurses	165	75	90
Home Health Aides*	135	110	25
Lawyers	**90**	**45**	**50**
Personal Care Aides*	90	80	10
Management Analysts	**65**	**40**	**25**
Computer Systems Analysts	65	35	30
Medical Assistants	60	40	20
Industrial Machinery Mechanics	55	30	20
Plumbers, Pipefitters, and Steamfitters	55	25	30
Medical Secretaries*	50	35	15
Public Relations Specialists	45	20	25
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	40	25	15
Software Developers, Systems Software	**35**	**25**	**10**
Network and Computer Systems Administrators	35	20	15
Biological Science Teachers, Postsecondary	35	20	15
Personal Financial Advisors	**30**	**25**	**10**
Dental Hygienists*	30	20	10
Healthcare Social Workers	30	20	10
Medical and Health Services Managers	**30**	**15**	**15**
Radiologic Technologists and Technicians	30	20	10
Training and Development Specialists	25	15	10
Medical Scientists, Except Epidemiologists	20	20	5
Occupational Therapists*	20	15	5
Software Developers, Applications	**20**	**15**	**5**
Physical Therapists	20	15	5
Cost Estimators	20	15	10
Computer-Controlled Machine Tool Operators, Metal and Plastic*	20	15	5
Social and Community Service Managers*	15	10	5
Anesthesiologists	15	10	5
Diagnostic Medical Sonographers*	15	10	5
Family and General Practitioners	**15**	**10**	**5**
Veterinarians	15	10	5
Physical Therapist Assistants*	15	10	5
Dietitians and Nutritionists	15	5	10
Physician Assistants	10	5	5
Financial Examiners	10	5	5
Medical Equipment Repairers	10	5	5
Occupational Therapy Assistants*	10	5	0
Clinical, Counseling, and School Psychologists	**10**	**5**	**5**

Note: Occupations are growth- and wages-weighted and data are rounded to the nearest 5. Occupations in bold are also high-earning.

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

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

Table J.11 Selected Fast-Growing Occupations (Base Year 2010 and Projected Year 2020)

Occupation	Employment		Percent Change	Annual Growth (Percent)	Average Annual Job Openings
	2010	2020			
Personal Care Aides*	1200	2010	68	5.33	90
Home Health Aides*	1840	2940	60	4.78	135
Occupational Therapy Assistants*	140	200	49	4.06	10
Helpers—Pipelayers, Plumbers, Pipefitters, and Steamfitters	NA	NA	48	4.00	15
Rehabilitation Counselors	NA	NA	45	3.78	15
Computer-Controlled Machine Tool Operators, Metal and Plastic*	310	450	45	3.75	20
Health Educators	120	170	45	3.75	10
Veterinary Technologists and Technicians	170	240	44	3.70	10
Diagnostic Medical Sonographers*	270	380	43	3.67	15
Marriage and Family Therapists	80	110	42	3.54	5
Physical Therapist Assistants*	280	390	41	3.50	15
Dental Hygienists*	510	720	41	3.49	30
Social and Community Service Managers*	230	320	41	3.47	15
Metal-Refining Furnace Operators and Tenders	220	320	41	3.47	15
Helpers—Carpenters	200	280	40	3.44	15
Audiologists	100	140	40	3.41	5
Mental Health Counselors	230	320	39	3.38	15
Occupational Therapists*	330	470	39	3.36	20
Medical Secretaries*	950	1320	39	3.33	50
Physical Therapist Aides	130	190	39	3.33	5

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

Table J.12 Selected High-Earning Occupations (Base Year 2010 and Projected Year 2020)

Occupation	Employment		Annual Growth (Percent)	Average Annual Job Openings	Mean Annual Salary ($)
	2010	2020			
Obstetricians and Gynecologists	70	90	2.48	5	264,692
Surgeons	160	210	2.42	5	245,174
Internists, General	160	200	2.33	5	241,142
Physicians and Surgeons, All Other	1,250	1,380	1.06	40	203,196
Chief Executives	1,070	1,100	0.26	30	200,203
Psychiatrists	NA	NA	1.95	0	181,064
Dentists, General	340	400	1.76	15	174,060
Pediatricians, General	80	110	2.48	5	143,905
Natural Sciences Managers	20	20	0.45	0	138,872
Lawyers*	2,520	2,950	1.59	90	131,263
Family and General Practitioners*	NA	NA	2.59	15	122,072
General and Operations Managers	6,820	7,070	0.36	150	120,920
Advertising and Promotions Managers	140	150	1.03	5	118,476
Financial Managers	1,390	1,460	0.48	35	118,216
Marketing Managers	270	310	1.11	10	113,542
Computer and Information Systems Managers	520	610	1.72	20	113,241
Education Administrators, Postsecondary	480	560	1.62	20	111,466
Architectural and Engineering Managers	390	430	0.99	10	110,065
Aerospace Engineers	NA	NA	1.94	5	109,807
Pharmacists	970	1,110	1.40	40	108,316
Human Resources Managers	190	210	1.30	10	108,273
Sales Managers	920	1,030	1.20	40	105,695
Administrative Services Managers	300	330	1.05	10	102,068
Podiatrists	30	30	1.39	0	100,502
Personal Financial Advisors*	750	970	2.71	30	99,118
Purchasing Managers	180	200	1.08	5	98,141
Managers, All Other	2,150	2,210	0.26	55	97,783
Management Analysts*	1,390	1,790	2.58	65	95,381
Securities, Commodities, and Financial Services Sales Agents	600	640	0.73	20	94,569
Compensation and Benefits Managers	60	70	0.31	0	94,528
Engineers, All Other	180	210	1.23	5	93,972
Physicists	20	20	2.03	0	93,948
Medical and Health Services Managers*	650	790	1.92	30	93,141
Emergency Management Directors	70	70	0.43	0	93,052
Public Relations and Fundraising Managers	290	330	1.31	10	93,025
Industrial Production Managers	280	320	1.48	10	90,443
Software Developers, Applications*	510	660	2.57	20	89,669
Construction Managers	1,520	1,680	1.05	25	89,021
Electronics Engineers, Except Computer	160	180	1.02	5	88,763
Detectives and Criminal Investigators	210	210	0.10	5	87,519
Clinical, Counseling, and School Psychologists*	120	160	2.54	10	87,186
Microbiologists	10	20	0.69	0	86,462
Transportation, Storage, and Distribution Managers	200	210	0.69	5	85,944
Chemical Engineers	10	10	1.84	0	85,262
Education Administrators, Elementary and Secondary School	380	420	0.88	15	84,841
First-Line Supervisors of Police and Detectives	200	200	-0.10	5	84,467
Software Developers, Systems Software*	730	980	3.00	35	83,514
Mining and Geological Engineers, Including Mining Safety Engineers	20	30	1.55	0	82,667
Property, Real Estate, and Community Association Managers	650	640	-0.12	15	82,321
Commercial Pilots	130	160	1.54	5	81,644

Note: Employment data are rounded to the nearest 10; openings to the nearest 5. The salary data provided are based on the May 2012 release of the Occupational Employment Statistics (OES) combined employment and wage file. Estimates for specific occupations may include imputed data. NA – Not available. Occupations in bold are also fast-growing.

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

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

Table J.13 Selected Sharp-Declining Occupations (Base Year 2010 and Projected Year 2020)

Occupation	Employment		Net Change	Percent Change
	2010	2020		
Postal Service Mail Sorters, Processors, and Processing Machine Operators	560	280	-280	-49
Switchboard Operators, Including Answering Service	680	510	-170	-25
Postal Service Mail Carriers	890	770	-120	-14
Cooks, Fast Food	1,830	1,720	-110	-6
Postal Service Clerks	190	90	-100	-50
Data Entry Keyers	870	780	-90	-10
Food Service Managers	880	810	-70	-8
Sewing Machine Operators	320	270	-50	-14
Computer Operators	340	300	-40	-12
Aircraft Mechanics and Service Technicians	NA	NA	-40	-12
Pressers, Textile, Garment, and Related Materials	230	190	-40	-16
Word Processors and Typists	300	270	-30	-10
Photographic Process Workers and Processing Machine Operators	140	110	-30	-20
Office Machine Operators, Except Computer	NA	NA	-20	-7
Floral Designers	210	190	-20	-8
Desktop Publishers	190	170	-20	-9
Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	170	150	-20	-13
Logging Equipment Operators	180	160	-20	-13
Rail-Track Laying and Maintenance Equipment Operators	NA	NA	-20	-15
Shampooers	120	100	-20	-16

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

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

Skills and Skills Gap Analyses

Jobs require skill sets and it is necessary that jobholders have the relevant skills. Table J.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 J.15 shows the percentage of selected occupations in the county 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 J.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 J.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 J.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	28	40	34
Active Listening	88	90	82
Critical Thinking	88	90	84
Learning Strategies	5	5	8
Mathematics	8	0	14
Monitoring	58	85	46
Reading Comprehension	78	70	74
Science	18	5	26
Speaking	80	85	80
Writing	55	50	50
Complex Problem Solving Skills			
Complex Problem Solving	58	40	58
Resource Management Skills			
Management of Financial Resources	3	0	2
Management of Material Resources	0	0	0
Management of Personnel Resources	8	5	20
Time Management	25	45	24
Social Skills			
Coordination	45	65	42
Instructing	13	15	6
Negotiation	3	0	10
Persuasion	5	10	14
Service Orientation	40	60	12
Social Perceptiveness	58	80	42
Systems Skills			
Judgment and Decision Making	70	50	80
Systems Analysis	13	0	10
Systems Evaluation	8	0	4
Technical Skills			
Equipment Maintenance	5	0	0
Equipment Selection	3	0	0
Installation	0	0	0
Operation and Control	5	10	2
Operation Monitoring	10	10	4
Operations Analysis	3	0	10
Programming	8	0	2
Quality Control Analysis	8	10	0
Repairing	5	0	0
Technology Design	0	0	0
Troubleshooting	5	0	0

Note: Rounding errors may be present.

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

High-earning occupations require more learning strategies, mathematics, science, personnel management, negotiation, persuasion, judgment and decision making, and operations analysis than both high-demand and fast-growing jobs. These skills typically require long training periods and postsecondary education. However, high-earning jobs require significantly less technical and social skills. High-demand occupations require more resource management, complex problem solving, systems, and technical skills than fast-growing occupations.

Table J.16 shows skill gap indexes for all 35 skills in Table J.14 based on a previous projections period (2008 to 2018). Although the skills gap indexes are for a previous projection period, they are applicable to current projections. Skills gap indexes range up to 100 and are standardized measures of the gap between current supply and projected demand. The index does not provide any information about current or base year skill supply. Its focus is on the projection period and identifies critical skill needs. The index essentially ranks expected training needs. The higher the index the more critical 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 systems, complex problem solving, and social skills; the scale of training should be raised for basic and social skills.

Education and Training Issues

Educational attainment in Jefferson County is better than that of the state as a whole. Of the residents age 25 and over, 87.2 percent had graduated from high school according to 2008-2012 five-year estimates by American Community Survey, compared to 82.6 percent for Alabama. Twenty-nine percent had a bachelor's or higher degree versus 22 percent for the state. Skill and education requirements for jobs keep rising. This highlights a strong need to continue raising educational attainment in the county.

Table J.17 shows the number of selected occupations in the county for which a particular education/training category is most common. In general, high-earning occupations require high educational attainment levels; just nine of the 50 high-earning occupations do not require a bachelor's or higher degree. Thirty-one (78 percent) of the 40 high-demand occupations require at least an associate degree and 24 (60 percent) require a bachelor's or higher degree. Twelve (60 percent) of the 20 fast-growing occupations require an associate's degree at the minimum, with seven (35 percent) requiring a bachelor's or higher degree.

The 2010 to 2020 occupational projections indicate that future jobs will require postsecondary education and training at a minimum. Job ads are increasingly asking for at least a high school

diploma or GED. Of the county's 725 single occupations, 88 are expected to decline over the period. The 20 sharpest-declining occupations will fall by at least six percent, and education and training for these should slow accordingly.

Table J.16 Skills Gap Indexes (Base Year 2008 to Projected Year 2018)

Skill	Total Openings (Projected Demand)	Replacement Index	Skills Gap Index
Reading Comprehension	6,595	70	100
Active Listening	6,525	71	97
Critical Thinking	5,935	69	94
Speaking	5,265	68	91
Active Learning	5,245	69	89
Coordination	5,060	69	86
Monitoring	4,810	69	83
Writing	4,660	69	80
Time Management	4,370	69	77
Instructing	4,480	69	74
Learning Strategies	4,215	68	71
Social Perceptiveness	3,900	68	69
Service Orientation	3,670	67	66
Judgment and Decision Making	3,190	70	63
Persuasion	3,250	70	60
Complex Problem Identification	2,895	68	57
Mathematics	2,595	69	54
Equipment Selection	1,945	69	51
Negotiation	1,745	74	49
Troubleshooting	1,430	69	46
Equipment Maintenance	1,230	69	43
Management of Personnel Resources	1,525	80	40
Installation	995	67	37
Operations Analysis	705	70	34
Operation and Control	740	71	31
Systems Evaluation	595	65	29
Repairing	700	68	26
Science	555	66	23
Management of Financial Resources	950	79	20
Quality control	640	70	17
Operation Monitoring	815	76	14
Systems Analysis	430	62	11
Technology Design	380	70	9
Management of Material Resources	520	80	6
Programming	80	63	3

Source: Alabama Department of Labor.

Note: The skills gap indexes are from 2008 to 2018 projection period and not 2010 to 2020.

Table J.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
Doctoral Degree or First Professional Degree	8	1	13
Master's Degree	3	4	2
Work Experience Plus a Bachelor's or Higher Degree	2	1	15
Bachelor's Degree	11	1	11
Associate Degree	7	5	2
Postsecondary Non-Degree Plus On-the-job Training	1	0	0
Postsecondary Non-Degree	1	0	1
Some College, no Degree Plus On-the-job Training	0	0	0
Some College, no Degree	0	0	0
High School Diploma Plus On-the-job Training	5	5	2
High School Diploma	0	0	4
Less than High School Plus On-the-job Training	2	3	0
Less than High School	0	0	0

Note: The on-the-job training refers to the typical on-the-job training needed to attain competency in the occupation in addition to the typical education needed for entry to the occupation. This could be long-term, moderate-term, or short-term on-the-job training. **Long-term** requires more than 12 months on-the-job training. **Moderate-term** requires one to 12 months of on-the-job training. **Short-term** requires up to one month of on-the-job training. These types of training are more common in occupations that require postsecondary non-degree or less educational attainment. Other types of on-the-job training requirements that may be needed but are not shown on the table are apprenticeship and internship/residency that are typical in certain professions many of which require higher educational attainment.

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

Implications and Recommendations

The main working age population is declining and job growth is expected to exceed both population and labor force growth through 2030 (Table J.18). From a 2010 base, worker shortfalls of 41,475 and 76,480 are estimated by 2020 and 2030, respectively. These jobs are likely to be filled through increased in-commuting, which will worsen congestion. A focus on both worker skills and the expected shortfalls, especially for critical occupations, must be a top priority through 2030.

Table J.18 Expected Worker Shortfall

	2010-2020	2010-2030
Total population growth (percent)	0.5	0.8
Age 20-64 population growth (percent)	-4.0	-8.6
Job growth (percent)	7.7	12.9
Worker shortfall (percent)	11.7	21.6
Worker shortfall (number)	41,475	76,480

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

Employment is critical to economic development and so strategies to address skill needs and worker shortfalls must be adopted and implemented. For Jefferson County, such strategies should aim at increasing labor force participation, encouraging in-migration, and raising worker productivity and could 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 and younger residents; (6) facilitation of in-commuting; and (7) encouragement of older worker participation in the labor force.

Improving education is vital because a highly educated and productive workforce is a critical economic development asset. The educational and training requirements of 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 systems, complex problem solving, and social 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 20 sharp-declining occupations in Table J.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 out-of-school youth, 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 poor. They usually have difficulty finding work because of low levels of educational attainment, geographic or other barriers, or a lack of occupational skills. 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 county's low population growth rate may hinder its ability to meet 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 county's economic development successes. Investment in amenities and infrastructure may be needed to support such growth. In-migration is generally more beneficial than in-commuting since it grows the economy faster and adds to the tax base.

Policies that facilitate and encourage older worker participation are needed as older workers can help meet the county's workforce challenges. Such policies could be related to income taxation, job flexibility, and retirement programs. As the share of older people in the population is projected to increase (see Table J.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 county'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 will help raise personal income for the county and provide additional local (county and city) tax revenue. Raising personal income by improving educational attainment and technological skills is an effective economic development strategy, especially for a county that has fairly low population and labor force growth rates. Together, workforce development and economic development can build a strong, well-diversified economy. Indeed, one cannot achieve success without the other.