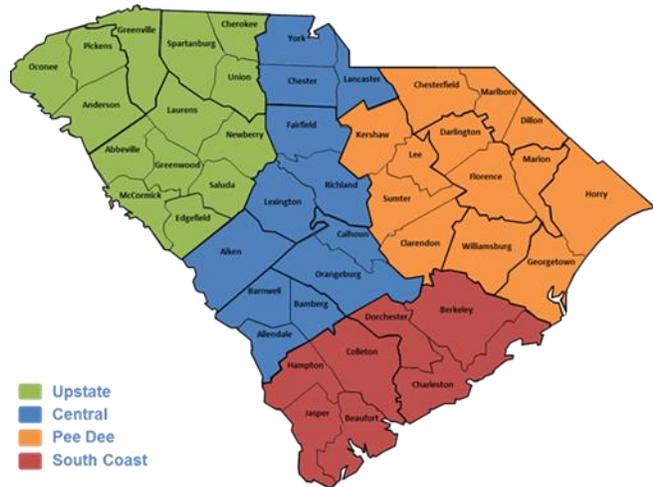


How Have Central Commuting Patterns Changed in the 21st Century?



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The Business Intelligence Department compiles and publishes employment statistics, job forecasts, wage data, demographics, and other labor market information to help public and private organizations, researchers, and others better understand today's complex workforce.

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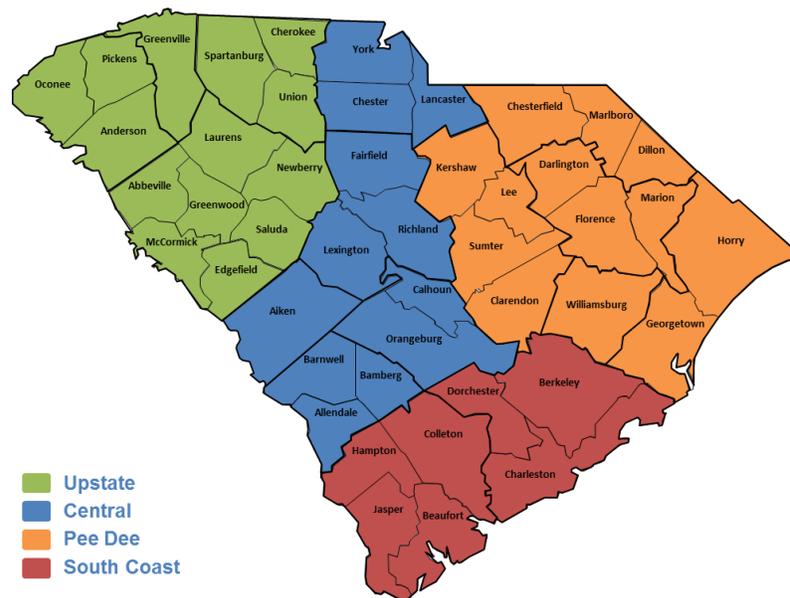
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How Have Central Commuting Patterns Changed in the 21st Century?

In the fall of 2015, the South Carolina Workforce Development Board approved a regional system for workforce planning in accordance with the federal law *Workforce Innovation and Opportunity Act of 2014 (WIOA)*. The Central was one of the four newly-created regions as shown in Figure 1.

Figure 1 – State WIOA Regions



Commuting patterns or the travel characteristics of workers from their homes to their jobs were one of the important elements in determining the regional system. Recently, the U.S. Census Bureau released an updated set of commuting information from the Longitudinal Employer-Household Dynamics (LEHD) program. This report analyzes that data from a historical perspective and answers the question “How have commuting patterns for the Central Region changed over time?”

The dataset from the LEHD program highlights annual information from 2002 to 2014 and gives a view of the changing nature of commuter travel characteristics in the Central. A job in this context is the “primary” job or the highest paying job that a person holds if one is a multi-job holder. The information is derived from a partially synthetic dataset that describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations. These data and marginal summaries are tabulated by several categorical variables.¹

Central Worker Inflow/Outflow

The Central has seen the number of jobs grow from 480,000 in 2002, reaching a peak of 520,000 in 2008, and falling during the Recession and early recovery (see Appendix 1). The region surpassed its previous high in 2014 with 530,000 jobs. The number of working Central residents followed a similar pattern as the number of jobs, in that, the number rose from 482,000 in 2002 to a peak of 520,000 in 2008 before falling and then finally surpassing its earlier peak in 2014 at 525,000.

The Central has had more jobs than working residents from 2003 forward by a varying amount. The differential has fluctuated from 1,700 in 2003 to 8,000 in 2006 to less than 300 in 2008 and 4,500 in 2014 with declines and upswings in the interim periods. The area is adding jobs faster than working residents over time with a job gain of 50,000 from 2002 to 2014, while the worker gain was 43,000 over the same period. Thus, the net inflow is growing as the influx of jobs is outpacing working residents. The Central is the only region in the state where this situation occurs.

Region Efficiency

An interesting aspect of the commuting pattern data is labor force and employment efficiencies for the region. The labor force element is shown by viewing the region's working residents, 525,000 in 2014, by their work location being inside or outside of the region. Of those 525,000 workers more than 374,000 or 71.1 percent hold a job within the region, while 152,000 or 28.9 percent work outside of the region. The within-region labor force efficiency measure has been falling from 76.8 percent in 2002 to the 71.1 percent figure stated above.

Meanwhile, the employment efficiency measure has been declining also. This statistic involves the jobs located in the region, 530,000 in 2014, and whether the workers' home locations are inside or outside of the region. The same 374,000 region workers, mentioned in the previous paragraph, who hold a Central job, represent 70.5 percent of all of the region's jobs. This figure has fallen from 77.1 percent in 2002. Twenty-nine and one-half percent of the region's jobs were filled by workers from outside of the region in 2014.

Taken together, these efficiency measures show that the area has become less efficient or self-sufficient over time even though the overall numbers of jobs and workers have increased. A higher percentage of residents live in the region but work out-of-area, and a higher percentage of the region's jobs are filled by out-of-area workers. This means there is more cross-regional commuting occurring as employers stretch out their employee networks farther from the worksite (to be analyzed further in a succeeding section).

Central Jobs by Industry and Worker Characteristics

The number of jobs in the Central Region stood at 530,000 in 2014, rising from 480,000 in 2002 (see Appendix 2). The top three industries in 2014 were Health Care and Social Assistance with 11.8 percent of the jobs, Retail Trade with 11.3 percent, and Manufacturing with 10.6 percent. Manufacturing has fallen from 14.4 percent of region jobs in 2002, while Health Care and Social Assistance has grown from 10.1 percent in the same year. Retail Trade has decreased over the period from 11.6 percent in 2002. The Accommodation and Food Services industry increased its share of overall industry employment by 1.5 percent from 2002 to 2014 to 8.7 percent or by over 11,000 jobs.

The increase in the number of jobs is almost entirely due to the gain of workers aged 55 and older as their numbers grew by 49,000 from 2002 to 2014. This group gained in percentage terms as well to compose 21.9 percent of the workforce in 2014 from 13.9 percent in 2002. The number of workers in the *Age 29 and younger* category fell in absolute as well as percentage terms. For the *Age 30 to 54* category, the number of workers grew by 500 even while losing 5.6 percent share of the total workers.

In terms of worker race holding Central jobs, the *White Alone* category fell by 0.6 percent from 2009 to 2014 to 65.7 percent, while the *Black Alone* category gained by 0.5 percent to 31.6 in 2014. The *Hispanic* share of workers notched up 0.1 percent since 2009 to 2.7 percent in 2014. Females' majority share of the workforce fell from 52.6 percent to 51.2 percent over the same period.

The four categories of educational attainment showed minor changes over the six-year span to 2014. The *Less than High School*, *High School*, and *Some College* categories each increased their share of the workforce by less than one percent each, while the *Bachelor's Degree and above* categories lost in overall proportion by 0.6 percent to 19.5 percent of the total workforce.

Home Counties of Central Workers

With 70.5 percent of the region's 530,000 jobs held by Central residents, it is not surprising that the top home counties of workers would also be in the Central (see Appendix 3). In fact, Richland, Lexington, York, Aiken, and Orangeburg were the top five home counties in 2014. Interestingly, only Lexington and York increased in their percentage share from 2002 to 2014 of the top five. Richland increased by 1,300 but lost 2.1 percent share of jobs. The growth of the top three counties, in number of workers, represent one-third of the gain for the entire region over the 13-year period.

Another interesting phenomenon emerged upon analysis of the home counties of Central jobs over time. Residents in urban counties, located outside of the region, gained in numbers and percentage holding Central jobs, while those two measures for several of the counties within the

Central dropped. The number of Mecklenburg, Greenville, Charleston, and Horry county residents grew in holders of Central jobs, while those statistics of workers from Aiken, Orangeburg, Lancaster, Chester, Bamberg, and Barnwell counties fell. This is another indication that commuters' aggregate travel distances were increasing over time.

Home Distance and Direction from Central Worksites

The proportion of workers whose homes were less than 10 miles from their Central work location fell by 7.6 percent or 17,000 people from 2002 to 2014 (see Appendix 4). The share of workers residing greater than 50 miles from their Central workplace grew by 38,000 or 5.7 percent to 22.0 percent of workers. The two categories of distance between the extremes, *10 to 24 miles* and *25 to 50 miles*, also saw increases in numbers and percentage share.

Workers whose homes were located to the west of their workplaces held 15 percent of the jobs in the region in 2014 as did those to the northwest of their work locations. The number of workers, whose homes were located in each of the eight primary directions from their workplaces, grew from 2002 to 2014. In other words, growth came from every direction over the time period.

Summary

This analysis shows the Central to be a growing and diversifying economy as seven industries each employ over 8 percent of the workforce in 2014, transforming from a more manufacturing-dominated region in the past. Demographics have remained relatively stable, while the workforce has aged as a whole. Efficiency measures, at about 71 percent on average, show the region becoming less self-sufficient in terms of workforce as commuter travel is lengthening over time.

Appendix 1

Inflow/Outflow Report

Selection Area Labor Market Size (Primary Jobs)

	2014		2013		2012		2011	
	Count	Share	Count	Share	Count	Share	Count	Share
Employed in the Selection Area	529,756	100.0%	516,591	100.0%	503,103	100.0%	506,125	100.0%
Living in the Selection Area	525,275	99.2%	507,996	98.3%	493,412	98.1%	495,323	97.9%
Net Job Inflow (+) or Outflow (-)	4,481	-	8,595	-	9,691	-	10,802	-

In-Area Labor Force Efficiency (Primary Jobs)

	2014		2013		2012		2011	
	Count	Share	Count	Share	Count	Share	Count	Share
Living in the Selection Area	525,275	100.0%	507,996	100.0%	493,412	100.0%	495,323	100.0%
Living and Employed in the Selection Area	373,615	71.1%	365,185	71.9%	356,442	72.2%	360,726	72.8%
Living in the Selection Area but Employed Outside	151,660	28.9%	142,811	28.1%	136,970	27.8%	134,597	27.2%

In-Area Employment Efficiency (Primary Jobs)

	2014		2013		2012		2011	
	Count	Share	Count	Share	Count	Share	Count	Share
Employed in the Selection Area	529,756	100.0%	516,591	100.0%	503,103	100.0%	506,125	100.0%
Employed and Living in the Selection Area	373,615	70.5%	365,185	70.7%	356,442	70.8%	360,726	71.3%
Employed in the Selection Area but Living Outside	156,141	29.5%	151,406	29.3%	146,661	29.2%	145,399	28.7%

Selection Area Labor Market Size (Primary Jobs)

	2010		2009		2008		2007	
	Count	Share	Count	Share	Count	Share	Count	Share
Employed in the Selection Area	498,128	100.0%	498,676	100.0%	520,081	100.0%	518,437	100.0%
Living in the Selection Area	491,365	98.6%	493,436	98.9%	519,808	99.9%	515,094	99.4%
Net Job Inflow (+) or Outflow (-)	6,763	-	5,240	-	273	-	3,343	-

In-Area Labor Force Efficiency (Primary Jobs)

	2010		2009		2008		2007	
	Count	Share	Count	Share	Count	Share	Count	Share
Living in the Selection Area	491,365	100.0%	493,436	100.0%	519,808	100.0%	515,094	100.0%
Living and Employed in the Selection Area	356,609	72.6%	359,804	72.9%	380,039	73.1%	381,260	74.0%
Living in the Selection Area but Employed Outside	134,756	27.4%	133,632	27.1%	139,769	26.9%	133,834	26.0%

In-Area Employment Efficiency (Primary Jobs)

	2010		2009		2008		2007	
	Count	Share	Count	Share	Count	Share	Count	Share
Employed in the Selection Area	498,128	100.0%	498,676	100.0%	520,081	100.0%	518,437	100.0%
Employed and Living in the Selection Area	356,609	71.6%	359,804	72.2%	380,039	73.1%	381,260	73.5%
Employed in the Selection Area but Living Outside	141,519	28.4%	138,872	27.8%	140,042	26.9%	137,177	26.5%

Appendix 1 - continued

Inflow/Outflow Report

Selection Area Labor Market Size (Primary Jobs)

	2006		2005		2004	
	Count	Share	Count	Share	Count	Share
Employed in the Selection Area	511,205	100.0%	501,441	100.0%	490,435	100.0%
Living in the Selection Area	503,221	98.4%	496,264	99.0%	489,130	99.7%
Net Job Inflow (+) or Outflow (-)	7,984	-	5,177	-	1,305	-

In-Area Labor Force Efficiency (Primary Jobs)

	2006		2005		2004	
	Count	Share	Count	Share	Count	Share
Living in the Selection Area	503,221	100.0%	496,264	100.0%	489,130	100.0%
Living and Employed in the Selection Area	385,326	76.6%	379,942	76.6%	375,523	76.8%
Living in the Selection Area but Employed Outside	117,895	23.4%	116,322	23.4%	113,607	23.2%

In-Area Employment Efficiency (Primary Jobs)

	2006		2005		2004	
	Count	Share	Count	Share	Count	Share
Employed in the Selection Area	511,205	100.0%	501,441	100.0%	490,435	100.0%
Employed and Living in the Selection Area	385,326	75.4%	379,942	75.8%	375,523	76.6%
Employed in the Selection Area but Living Outside	125,879	24.6%	121,499	24.2%	114,912	23.4%

Selection Area Labor Market Size (Primary Jobs)

	2003		2002	
	Count	Share	Count	Share
Employed in the Selection Area	481,884	100.0%	480,132	100.0%
Living in the Selection Area	480,183	99.6%	482,323	100.5%
Net Job Inflow (+) or Outflow (-)	1,701	-	-2,191	-

In-Area Labor Force Efficiency (Primary Jobs)

	2003		2002	
	Count	Share	Count	Share
Living in the Selection Area	480,183	100.0%	482,323	100.0%
Living and Employed in the Selection Area	369,212	76.9%	370,357	76.8%
Living in the Selection Area but Employed Outside	110,971	23.1%	111,966	23.2%

In-Area Employment Efficiency (Primary Jobs)

	2003		2002	
	Count	Share	Count	Share
Employed in the Selection Area	481,884	100.0%	480,132	100.0%
Employed and Living in the Selection Area	369,212	76.6%	370,357	77.1%
Employed in the Selection Area but Living Outside	112,672	23.4%	109,775	22.9%

Appendix 2

Work Area Profile Report

Total Primary Jobs

	2014		2002	
	Count	Share	Count	Share
Total Primary Jobs	529,756	100.0%	480,132	100.0%

Jobs by Worker Age

	2014		2002	
	Count	Share	Count	Share
Age 29 or younger	118,729	22.4%	119,014	24.8%
Age 30 to 54	294,797	55.6%	294,286	61.3%
Age 55 or older	116,230	21.9%	66,832	13.9%

Jobs by Earnings

	2014		2002	
	Count	Share	Count	Share
\$1,250 per month or less	115,464	21.8%	129,521	27.0%
\$1,251 to \$3,333 per month	211,658	40.0%	230,316	48.0%
More than \$3,333 per month	202,634	38.3%	120,295	25.1%

Jobs by NAICS Industry Sector

	2014		2002	
	Count	Share	Count	Share
Agriculture, Forestry, Fishing and Hunting	3,201	0.6%	2,636	0.5%
Mining, Quarrying, and Oil and Gas Extraction	356	0.1%	469	0.1%
Utilities	7,660	1.4%	3,218	0.7%
Construction	21,149	4.0%	27,183	5.7%
Manufacturing	56,378	10.6%	69,272	14.4%
Wholesale Trade	21,987	4.2%	20,346	4.2%
Retail Trade	59,831	11.3%	55,727	11.6%
Transportation and Warehousing	13,111	2.5%	10,145	2.1%
Information	8,664	1.6%	9,398	2.0%
Finance and Insurance	33,479	6.3%	26,249	5.5%
Real Estate and Rental and Leasing	6,850	1.3%	6,433	1.3%
Professional, Scientific, and Technical Services	26,213	4.9%	17,101	3.6%
Management of Companies and Enterprises	4,228	0.8%	3,591	0.7%
Administration & Support, Waste Management and Remediation	42,984	8.1%	36,416	7.6%
Educational Services	51,791	9.8%	50,742	10.6%
Health Care and Social Assistance	62,667	11.8%	48,562	10.1%
Arts, Entertainment, and Recreation	5,548	1.0%	4,594	1.0%
Accommodation and Food Services	45,986	8.7%	34,562	7.2%
Other Services (excluding Public Administration)	13,465	2.5%	12,987	2.7%
Public Administration	44,208	8.3%	40,501	8.4%

Appendix 2 – continued

Work Area Profile Report

Jobs by Worker Race

	2014		2009	
	Count	Share	Count	Share
White Alone	348,299	65.7%	330,623	66.3%
Black or African American Alone	167,485	31.6%	154,973	31.1%
American Indian or Alaska Native Alone	1,947	0.4%	1,702	0.3%
Asian Alone	7,620	1.4%	7,392	1.5%
Native Hawaiian or Other Pacific Islander Alone	277	0.1%	372	0.1%
Two or More Race Groups	4,128	0.8%	3,614	0.7%

Jobs by Worker Ethnicity

	2014		2009	
	Count	Share	Count	Share
Not Hispanic or Latino	515,502	97.3%	485,628	97.4%
Hispanic or Latino	14,254	2.7%	13,048	2.6%

Jobs by Worker Educational Attainment

	2014		2009	
	Count	Share	Count	Share
Less than high school	47,739	9.0%	40,426	8.1%
High school or equivalent, no college	122,918	23.2%	113,138	22.7%
Some college or Associate degree	136,936	25.8%	127,665	25.6%
Bachelor's degree or advanced degree	103,434	19.5%	100,101	20.1%
Educational attainment not available (workers aged 29 or younger)	118,729	22.4%	117,346	23.5%

Jobs by Worker Sex

	2014		2009	
	Count	Share	Count	Share
Male	258,557	48.8%	236,580	47.4%
Female	271,199	51.2%	262,096	52.6%

Appendix 3

Home Destination Report - Where Workers Live Who are Employed in the Selection Area - by Counties

Total Primary Jobs

	2014		2002	
	Count	Share	Count	Share
Total Primary Jobs	529,756	100.0%	480,132	100.0%

Jobs Counts by Counties Where Workers Live - Primary Jobs

	2014		2002	
	Count	Share	Count	Share
Richland County, SC	119,008	22.5%	117,750	24.5%
Lexington County, SC	95,350	18.0%	86,119	17.9%
York County, SC	51,302	9.7%	45,678	9.5%
Aiken County, SC	36,463	6.9%	41,005	8.5%
Orangeburg County, SC	24,474	4.6%	27,577	5.7%
Lancaster County, SC	15,470	2.9%	17,207	3.6%
Mecklenburg County, NC	13,023	2.5%	5,276	1.1%
Kershaw County, SC	11,412	2.2%	8,670	1.8%
Greenville County, SC	9,960	1.9%	6,807	1.4%
Charleston County, SC	8,700	1.6%	6,843	1.4%
Chester County, SC	8,357	1.6%	10,595	2.2%
Spartanburg County, SC	7,500	1.4%	7,364	1.5%
Horry County, SC	6,586	1.2%	4,014	0.8%
Fairfield County, SC	6,369	1.2%	6,320	1.3%
Sumter County, SC	6,365	1.2%	5,652	1.2%
Barnwell County, SC	6,253	1.2%	7,916	1.6%
Dorchester County, SC	5,204	1.0%	4,257	0.9%
Berkeley County, SC	4,801	0.9%	3,975	0.8%
Richmond County, GA	4,779	0.9%	6,126	1.3%
Newberry County, SC	4,707	0.9%	3,936	0.8%
Calhoun County, SC	4,641	0.9%	4,156	0.9%
Florence County, SC	4,513	0.9%	3,710	0.8%
Anderson County, SC	4,237	0.8%	3,446	0.7%
Bamberg County, SC	4,059	0.8%	4,169	0.9%
Laurens County, SC	3,574	0.7%	1,669	0.3%
All Other Locations	62,649	11.8%	39,895	8.3%

Appendix 4

Distance/Direction Report - Work Census Block to Home Census Block

Job Counts in Home Blocks by Distance Only

	2014		2002	
	Count	Share	Count	Share
Total Primary Jobs	529,756	100.0%	480,132	100.0%
Less than 10 miles	208,928	39.4%	225,801	47.0%
10 to 24 miles	150,362	28.4%	130,481	27.2%
25 to 50 miles	53,997	10.2%	45,762	9.5%
Greater than 50 miles	116,469	22.0%	78,088	16.3%

Job Counts in Home Blocks to the East of Work Blocks by Distance

	2014		2002	
	Count	Share	Count	Share
Total Primary Jobs	65,301	100.0%	62,960	100.0%
Less than 10 miles	24,834	38.0%	28,450	45.2%
10 to 24 miles	15,088	23.1%	14,280	22.7%
25 to 50 miles	7,888	12.1%	7,032	11.2%
Greater than 50 miles	17,491	26.8%	13,198	21.0%

Job Counts in Home Blocks to the North of Work Blocks by Distance

	2014		2002	
	Count	Share	Count	Share
Total Primary Jobs	57,598	100.0%	48,773	100.0%
Less than 10 miles	25,841	44.9%	26,294	53.9%
10 to 24 miles	14,042	24.4%	11,291	23.2%
25 to 50 miles	5,813	10.1%	4,660	9.6%
Greater than 50 miles	11,902	20.7%	6,528	13.4%

Job Counts in Home Blocks to the Southeast of Work Blocks by Distance

	2014		2002	
	Count	Share	Count	Share
Total Primary Jobs	65,086	100.0%	60,068	100.0%
Less than 10 miles	23,875	36.7%	26,459	44.0%
10 to 24 miles	12,600	19.4%	13,080	21.8%
25 to 50 miles	6,899	10.6%	4,825	8.0%
Greater than 50 miles	21,712	33.4%	15,704	26.1%

Job Counts in Home Blocks to the Northeast of Work Blocks by Distance

	2014		2002	
	Count	Share	Count	Share
Total Primary Jobs	70,885	100.0%	60,710	100.0%
Less than 10 miles	27,859	39.3%	30,994	51.1%
10 to 24 miles	26,588	37.5%	19,390	31.9%
25 to 50 miles	7,878	11.1%	5,796	9.5%
Greater than 50 miles	8,560	12.1%	4,530	7.5%

Job Counts in Home Blocks to the South of Work Blocks by Distance

	2014		2002	
	Count	Share	Count	Share
Total Primary Jobs	53,551	100.0%	45,026	100.0%
Less than 10 miles	21,244	39.7%	23,404	52.0%
10 to 24 miles	11,973	22.4%	10,751	23.9%
25 to 50 miles	7,162	13.4%	4,919	10.9%
Greater than 50 miles	13,172	24.6%	5,952	13.2%

Appendix 4 - continued

Distance/Direction Report - Work Census Block to Home Census Block

Job Counts in Home Blocks to the Southwest of Work Blocks by Distance

	2014		2002	
	Count	Share	Count	Share
Total Primary Jobs	57,996	100.0%	53,254	100.0%
Less than 10 miles	25,724	44.4%	27,501	51.6%
10 to 24 miles	20,540	35.4%	17,269	32.4%
25 to 50 miles	5,044	8.7%	3,823	7.2%
Greater than 50 miles	6,688	11.5%	4,661	8.8%

Job Counts in Home Blocks to the Northwest of Work Blocks by Distance

	2014		2002	
	Count	Share	Count	Share
Total Primary Jobs	79,607	100.0%	79,367	100.0%
Less than 10 miles	29,299	36.8%	31,572	39.8%
10 to 24 miles	19,860	24.9%	19,334	24.4%
25 to 50 miles	6,593	8.3%	9,542	12.0%
Greater than 50 miles	23,855	30.0%	18,919	23.8%

Job Counts in Home Blocks to the West of Work Blocks by Distance

	2014		2002	
	Count	Share	Count	Share
Total Primary Jobs	79,732	100.0%	69,974	100.0%
Less than 10 miles	30,252	37.9%	31,127	44.5%
10 to 24 miles	29,671	37.2%	25,086	35.9%
25 to 50 miles	6,720	8.4%	5,165	7.4%
Greater than 50 miles	13,089	16.4%	8,596	12.3%

Appendix 5

Data Source and Notes

Data Source: U. S. Census Bureau, 2016. *OnTheMap* Application. Longitudinal-Employer Household Dynamics (LEHD) Program. <http://onthemap.ces.census.gov/>

¹ U. S. Census Bureau, 2016, from the *OnTheMap* Data Overview document at: <http://lehd.ces.census.gov/doc/help/onthemap/OnTheMapDataOverview.pdf>

The LEHD data infrastructure is based upon several core datasets provided by state partners. These datasets include Unemployment Insurance (UI) wage data and the Quarterly Census of Employment and Wages (QCEW) as well as federal civilian workers. Coverage currently excludes several groups of workers: uniformed military, self-employed workers, and informally employed workers.

For the purposes of *OnTheMap*, LEHD defines a job as a link between a worker and a firm at which the worker has been employed during the reference quarter (Quarter 2 [April-June] 2014) and during the quarter prior to the reference quarter. This definition of "job" is sometimes called a "Beginning of Quarter" job because it is assumed that the worker was employed at that firm on the first day of the reference quarter. Jobs are associated with both a home census block for the worker and a jobsite census block in an origin-destination format.

This report uses the "primary job" variable. A primary job is the highest paying job for an individual worker for the year. The count of primary jobs is the same as the count of workers.

Required Language

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Appendix 5 – continued

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