

# local insights



An economic and labor market analysis of the Bear River Area

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## Economic Diversity in Bear River



BY TYSON SMITH, ECONOMIST

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*How industrial diversity can impact the economy.*

Many economists contend that economic diversification promotes stability in local markets because having several strong industries in a region provides a variety of employment and training opportunities. This is particularly helpful for workers that have been affected by structural or cyclical downturns in other parts of the labor market. The Hachman Index empirically measures economic diversity by establishing how closely the employment distribution of a specific region resembles that of a larger, more diverse geography, like the United States. The index value ranges from zero to one. The closer the index value is to one, the more the region's employment distribution among industries resembles the employment patterns of the national economy.

Figure 1 underscores the relative economic diversity of the state. Utah was the fourth most diverse economy in the nation in 2012, posting a Hachman Index of 0.97. The index values for the three Bear River counties ranked among the top half of the 29 counties in Utah, with Box Elder (0.64), Cache (0.75) and Rich (0.49) ranking eleventh, eighth and

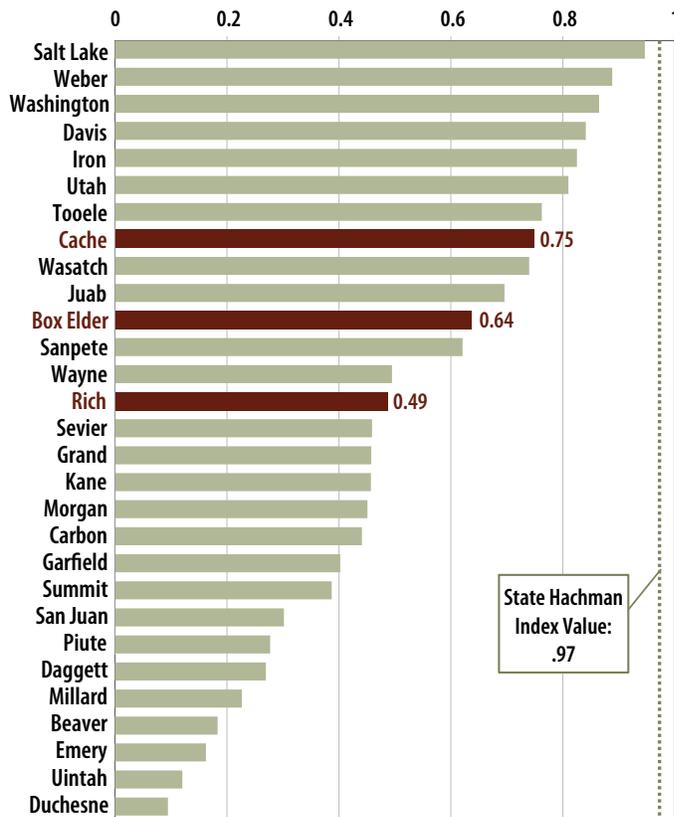
fourteenth, respectively. In total, the Bear River economy was moderately diverse in 2012 with a Hachman Index of 0.76.

It is difficult to determine exactly what index value constitutes a highly diversified region when there are large differences in total employment. However, if a county's Hachman Index ranks considerably higher than its total employment count – relative to the other counties in the state – that is an indication that the county is relatively diverse. Using this method reveals that Rich County had the fourteenth highest Hachman Index and the 27th largest employment base in the state, making it more diverse than counties of similar size. Conversely, both Box Elder and Cache's index values ranked three spots below their total employment ranks of fifth and eighth, respectively.

The Hachman Index is derived from the weighted average of the industry Location Quotients (LQ) in a region. An LQ measures the regional concentration of employment in a given industry relative to a larger geography. As a rule of thumb, an LQ of 1.2 or higher represents an industry with a relatively high concentration of

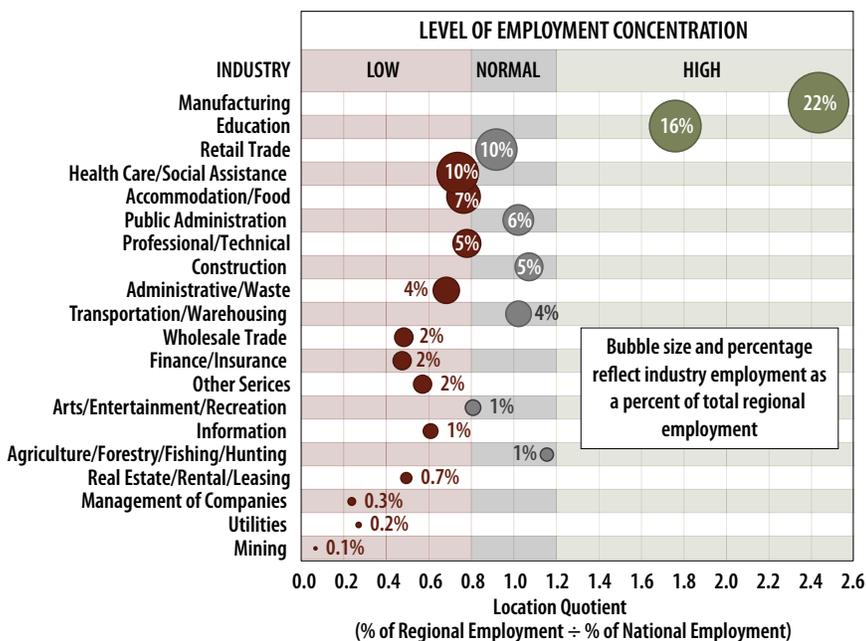


Figure 1: 2012 Utah Hachman Index Values



Source: U.S. Bureau of Labor Statistics

Figure 2: 2012 Bear River Employment Distribution\*



\*Employment that is covered by the Quarterly Census of Employment and Wages

Source: U.S. Bureau of Labor Statistics

regional employment, while a score of 0.8 or lower indicates sparse regional employment. The bubble chart in Figure 2 identifies the proportion and density of employment among the major industries in the Bear River region. Breaking the Hachman Index into individual components provides insight into the distribution of employment in a local economy.

In Bear River, five of the 20 industry LQs fit within the normal range of employment concentration in 2012. These industries constituted 27.1 percent of the regions employment. Applying Utah's 2012 industry employment to the same chart, 15 of the 20 LQs fall within the normal range, and the employment totals from those industries represented 79.3 percent of the jobs in the state that year. Far fewer of the statewide LQs fell outside the normal range than for the Bear River region, which explains the significant difference in Hachman Index values between the two geographies.

There were a few industries in Bear River where employment percentages diverged notably from national trends. Manufacturing and educational services made up a total of 38.3 percent of employment in the region, posting LQs of 2.4 and 1.8, respectively. On the other hand, 12 industries—representing 34.6 percent of total regional employment—had LQs below the 0.8 threshold. The largest low-density industries in the region were health care/social assistance, accommodation/food services, and professional/technical services.

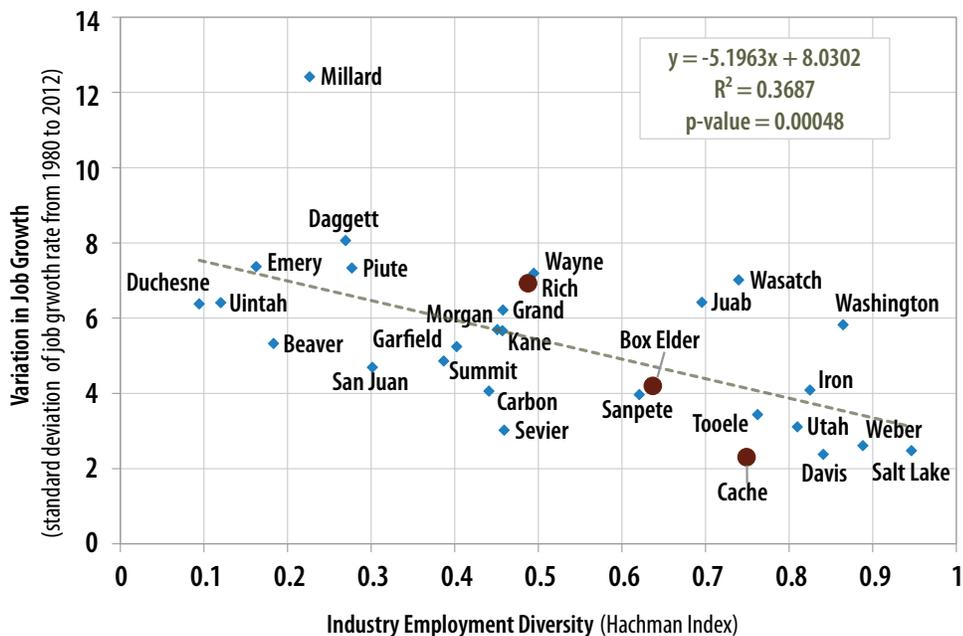
Each county in Utah has responded differently to economic conditions over the last few decades. Structural and cyclical events have impacted growth in every region of the state regardless of the breadth of industrial employment in those areas. In the short term, some geographic comparative advantages have buoyed employment during periods of economic contraction, e.g. the Uintah Basin's natural gas boom during the Great Recession. However, the data show that over the last 30 years Utah's more specialized counties have experienced greater economic volatility.

Figure 3 illustrates the relationship between economic diversity and employment variability. The vertical axis measures average standard deviation, which estimates the ranges of year-over-year percent change in employment for each county since 1980. Counties with higher average standard deviations demonstrated more volatility

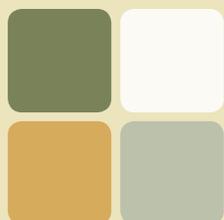
in employment growth rates than those with lower standard deviations. The horizontal axis is the corresponding Hachman Index value for each area. The relationship between variation in job growth and economic diversity is not perfectly linear ( $R^2 = 0.37$ ), but the inverse correlation is statistically significant. In other words, counties with higher levels of industrial diversity tends to also have more stable growth rates.<sup>1</sup> This relationship is exemplified by the three Bear River counties.

<sup>1</sup> Variability will also be a function of a geography's population—a very small population will show more volatile changes in employment because the gain or loss of one job proportionately will be greater for small areas than large ones.

Figure 3: Variation in Job Growth as a Function of Industry Diversity



Source: U.S. Bureau of Labor Statistics



# Bear River Employment Review:

## Annual and Fourth Quarter Trends

BY TYSON SMITH, ECONOMIST

### Regional Overview

From 2012 to 2013, the Bear River region added an annual average of 1,608 nonfarm payroll jobs, a 2.4 percent year-over increase. Figure 4 highlights the positive annual trends in total employment for the region. The region grew employment at a slower rate than the rest of the state, which grew 3.3 percent over the year.

In the fourth quarter of 2013, employment growth accelerated to 2.9 percent from 2012. The late-year uptick in growth is a positive sign that the region's economy will continue to add employees at a moderate pace through the first half of 2014.

### Industry Employment

Aligning firms and organizations that perform similar functions provides a construct for examining employment and the economy. Total nonfarm employment contains 12 industry groups that can be clustered into two sectors: goods-producing (mining, construction and manufacturing) and service-providing (trade/transportation/utilities, information, financial activities, professional/business services, educational/health/social services, leisure/hospitality, other services, non-classified, and government). Figure 5 illustrates how these sectors grew from 2012 to 2013.

**Goods-Producing:** In 2013, 27.0 percent of total nonfarm employment in Bear River was in private goods-producing jobs—compared to the state average of 15.8 percent—reflecting the strong manufacturing presence in the area. Private employment in goods-production grew at a rate of 2.4 percent per year, adding an annual average of 435 jobs. Construction employment grew by 5.5 percent, the fastest rate among the industry groups in the good-producing sector. Manufacturing employment increased at a less brisk 1.7 percent from 2012 to 2013, but added an average of 254 jobs compared to the 170 jobs added in construction. During the fourth quarter of 2013 the

goods-producing sector grew at a 3.0 percent rate, 0.6 percentage points quicker than the annual average for the region.

**Service-Providing:** Slightly more than 50 percent of the nonfarm jobs in Bear River are categorized in the private service-providing sector. Employment in this sector increased by 957 jobs, or 2.8 percent, from 2012 to 2013. The educational/health/social services, leisure/hospitality, and financial activities industry groups added an average of 530, 188 and 159 jobs, respectively; the largest annual increases in the region. In the fourth quarter of 2013, retail trade employment made significant gains, adding a quarterly average of 235 employees, or 3.3 percent from the same quarter in 2012. The surge in retail trade employment is a positive sign for sustained economic expansion, and reflects a rise in consumer demand and confidence during the holiday shopping season from the prior year.

**Government:** Government employment is generally classified in the service-

providing group; however, the government sector functions differently than the for-profit private sector and is therefore evaluated here separately. Government jobs represent nearly one-fourth of the total employment in the region. Annual government employment in Bear River grew by 1.4 percent year-over-year. Local and state government employment increased by an average of 154 and 66 employees respectively from last year, while the number of federal government jobs decreased by 8 positions. During the fourth quarter, the sector expanded by 1.8 percent, and reversed the trend in federal government employment by adding 0.7 percent in that area.

Figure 6 shows the percentage change from 2012 to 2013 for each of the 12 major industry groups.

### Box Elder County

Total nonfarm employment in Box Elder increased 4.5 percent year-over-year. From 2012 to 2013, Box Elder added 724 nonfarm jobs, resulting in an annual

average employment total of 16,955. Fourth quarter year-over employment growth was nearly 2 percentage points higher than the annual average. The region added jobs at a 6.1 percent rate in the fourth quarter compared to the prior year.

**Goods-Producing:** Annual goods-producing employment increased 6.2 percent, or an average of 342 jobs, from 2012 to 2013. Manufacturing, the county's largest industry, added an average of 272 jobs up 6.1 percent from 2012. In the fourth quarter of 2013, construction experienced a 13.6 percent surge that far outpaced the annual average of 5.9 percent. In 2013, the county showed a quarterly average of 146 more construction jobs in the region than the fourth quarter of 2012.

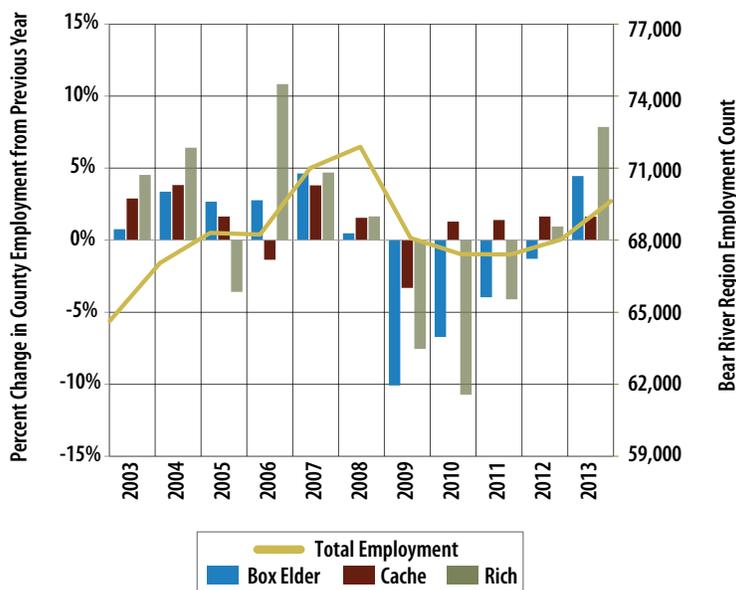
**Service-Providing:** From 2012 to 2013, the service-providing sector added 278 jobs year-over-year, a growth rate of 3.4 percent. The professional/business services and the trade/transportation/utilities groups tallied an annual average of 85 and 67 new jobs, respectively. Year-over growth of 9.9 percent in professional and business services understates the progress of this industry group from 2012 to 2013. In the fourth quarter of 2013, the sector increased by 22.9 percent, finishing the year with an average of 1,020 jobs.

**Government:** Government employment grew 4.0 percent from 2012 to 2013. Local government, which added an annual average of 105 employees, was responsible for 100 percent of the new government jobs added in the region. Local government employment growth during the fourth quarter increased even further to 6.8 percent. While federal government contracted 0.7 percent over the year, it expanded 3.6 percent during the fourth quarter.

### Cache County

Total nonfarm employment in Cache grew 1.6 percent from 2012 to 2013. Cache added an average of 837 nonfarm jobs year-over-year, resulting in total employment of 52,013. Cache experienced the smallest

Figure 4: Annual Bear River Employment Trends



Source: U.S. Bureau of Labor Statistics

difference between annual and quarterly employment growth rates in the region. Cache grew 0.1 percentage point faster during the last three months of the year compared to the annual average.

**Goods-Producing:** Goods-producing employment increased by an annual average of 92 jobs, or 0.7 percent, from 2012 to 2013. Construction added approximately 110 jobs or 5.5 percent. Manufacturing on the other hand, lost an average of 19 positions or 0.2 percent. In the fourth quarter of 2013, the annual trends reversed. Although quarterly construction employment increased from the year prior, the growth was less robust at 4.2 percent. Manufacturing added a quarterly average of 30 jobs, an increase of 0.3 percent.

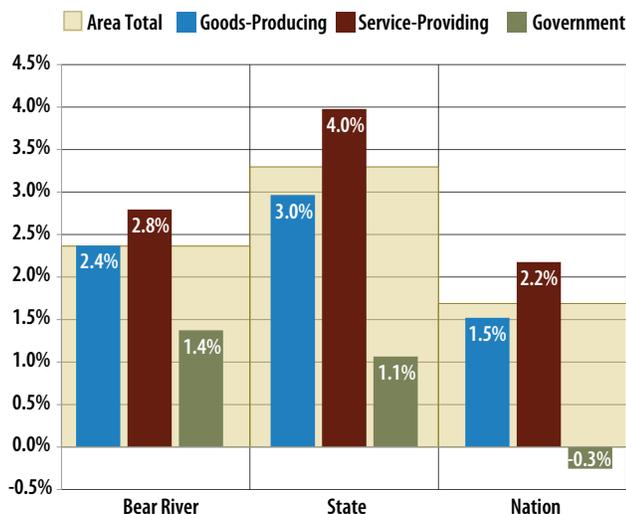
**Service-Providing:** Over the last year, service-providing employment in Cache grew 2.5 percent, adding an average of 632 jobs. Educational/health/social services and financial activities increased 7.8 percent and 11.9 percent, respectively. Those two industry groups generated the most new jobs, on average, over the year— 462 in educational/health/social services and 173 in financial activities. Conversely, professional/business services shrank 3.2 percent from 2012 to 2013. These job losses came from the administrative support/waste management industry group. The service-providing sector grew at the same 2.5 percent pace from the fourth quarter 2012 to the fourth quarter 2013.

**Government:** The annual average of government employment rose from 12,618 in 2012 to 12,728 in 2013. From year-to-year, state government added 67 employees and local government added 50 jobs to the county. The annual average government employment increase of 0.9 percent is slightly higher than the fourth quarter average rate of 0.8 percent. Quarterly growth in local government employment measured 0.3 percent, falling short of the annual average of 1.0 percent.

### Rich County

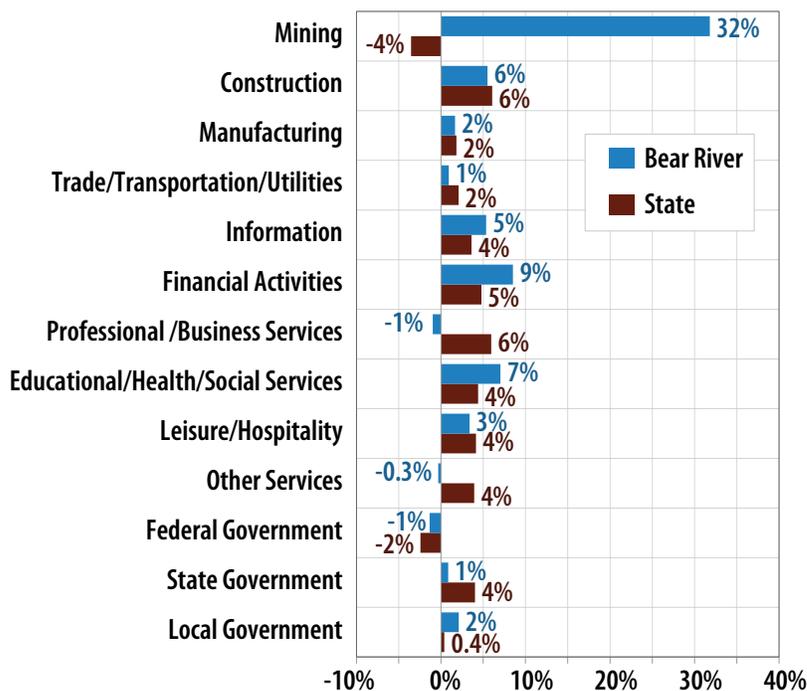
Total nonfarm employment in Rich County increased 7.9 percent from 2012

Figure 5: Change in Sector Employment from 2012 to 2013



Source: U.S. Bureau of Labor Statistics

Figure 6: Change in Industry Group Employment from 2012 to 2013



Source: U.S. Bureau of Labor Statistics

to 2013. Average total employment in 2013 measured 660, a 48 job increase from the previous year. Fourth quarter employment reached pre-recession peaks at an average of 621, and increased a significant 19.8 percent from the fourth quarter of 2012.

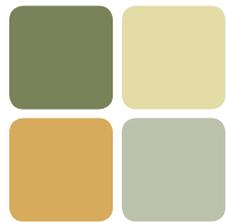
**Goods-Producing:** On average, employment in this sector remained virtually stagnant in 2013. Construction, which makes up approximately 80 percent of all goods-producing jobs in the county,

lost two jobs over the year. However, fourth quarter growth of 12.0 percent reversed the negative annual trend.

**Service-Providing:** This sector added an average of 48 jobs from 2012 to 2013 for a growth rate of 13.9 percent. Over the year, the leisure/hospitality and the professional/business services groups increased by 29 and 25 jobs, respectively. Growth in these two industry groups was even more substantial in the fourth quarter. A 68.2 percent

increase in accommodations and food services jobs drove the upward change in leisure and hospitality.

**Government:** Government employment remained almost static in 2013. State and federal government employment remained stable, while local government lost one job over the year. Local government employment growth bounced back in the fourth quarter, increasing by 13.8 percent or 25 jobs from the same quarter in 2012.



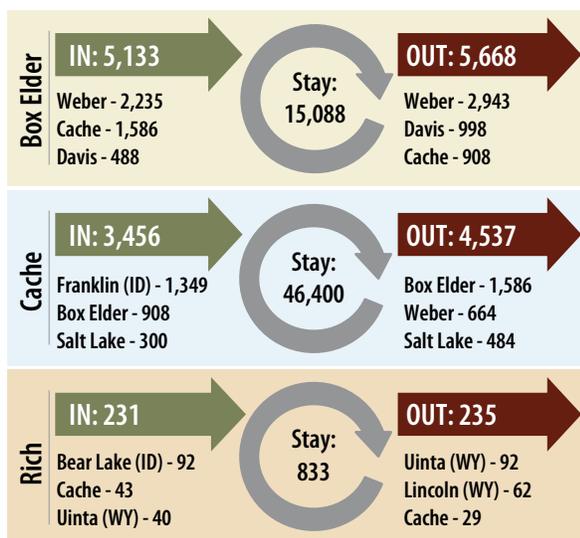
## The Journey to Work

BY TYSON SMITH, ECONOMIST

Where people work and how they travel to and from work are important aspects of the labor market. Commuter patterns are used by the Bureau of Labor Statistics to determine local area labor force totals and without accurate estimates of

the employed population, the Department of Workforce Services could not produce county-level unemployment rates. Policy makers, economic developers, transit authorities and business owners all use commuter patterns to make investment decisions in public goods (roads and public transportation) and private goods (store locations and workforce availability).

Figure 7: In-commuter/Out-commuter Employment Counts



The U.S. Census Bureau recognized the economic value of tracking and reporting commuting patterns; and through 2000, it collected this information via the long form during the decennial Censuses. In 2010, the Bureau reengineered the decennial census and discontinued the long form. At that time, the methodology for collecting detailed socioeconomic information, like commuter patterns, transitioned to the American Community Survey (ACS). The ACS provides five year commuter estimates for all counties and large cities every year, rather than once every 10 years.<sup>1</sup>

The ACS can illuminate the flow of labor into, and out of, a county. Some counties are net labor importers, while other counties are net labor exporters. Salt Lake County for example, sees an estimated 97,063 workers commute into the county for work, compared to an estimated 33,869 working residence that commute out of the county, making it the state's largest net labor importer. All three Bear River counties export more workers than they import (Figure 7). Bear River's highest percentage of in-commuter workers is found in Box Elder County, with one quarter of total employment in-commuting. Rich and Cache

Source: Census Bureau; American Community Survey

Counties import 21.7 and 6.9 percent of their respective county employment. The trend is similar for the percent of working residents that commute out of Box Elder (27.3 percent), Rich (22.0 percent) and Cache (8.9 percent) counties.

Commuting among counties is largely a function of proximity to the worker's county of residence. Tangential counties are more likely to share workforces. Approximately 50 percent of Box Elder's in-commuters (2,235 workers) and out-commuters (2,943 residents) are shared with bordering Weber County. In Cache County, 39.0 percent of the in-commuters come from Franklin County, Idaho (1,349), while 35.0 percent of out-commuters go to Box Elder County for work (1,586). Rich County, which shares borders with Idaho and Wyoming, has the highest percentage of in-commuters from Bear Lake County, Idaho (39.8 percent), and the highest percentage of out-commuters to Uinta, Wyoming (39.2 percent). Understanding that a county's workforce is not a closed system, bound by county lines, is a valuable piece of information for decision makers looking to invest in a specific geography.

Still, the majority of the total employment in a given geography normally comes from residents that live and work in the same county. County residents account for between 74.6 percent (Box Elder) and 93.1 percent (Cache) of employment in Bear River.

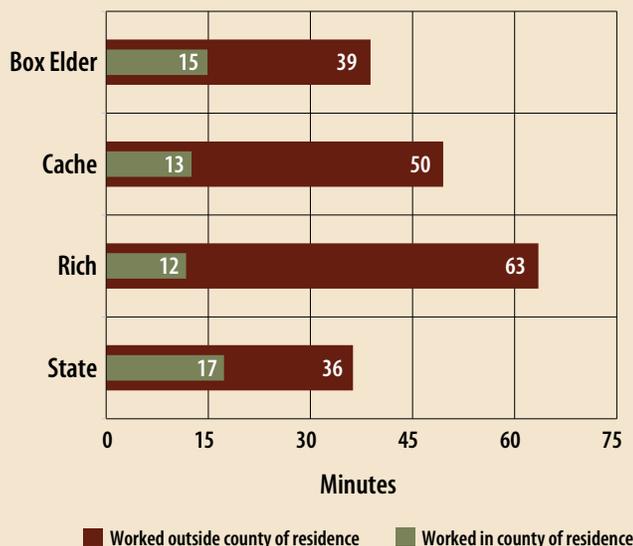
Proximity to work affects commuting habits in other ways that are also captured by the ACS. Figure 8 highlights the difference in commute time for workers that worked outside their county of residence and those that worked inside their county of residence.

As expected, commuters that worked in the county in which they live had much shorter commutes than those who worked outside their county of residence. Out-of-county commuters in Box Elder, Cache and Rich spent approximately 24, 37 and 52 more minutes respectively traveling to work than their in-county counterparts. The average difference in travel time for in county versus outside county commuters in Bear River is 30 minutes, which is more than 11 minutes longer than the state average.

The location of one's job influences more than the amount of time spent commuting to work. Location also impacts how workers get to and from their place of employment. Figure 9 shows the different means of transportation for Bear River workers depending on the location of their job (in the county, outside the county and outside the state). Figure 9 shows that the proportion of workers who carpool is much greater for workers that travel outside their county or state of residence for work. In contrast, nearly 80 percent of Bear River commuters that work and live in the same county drive to their job alone.

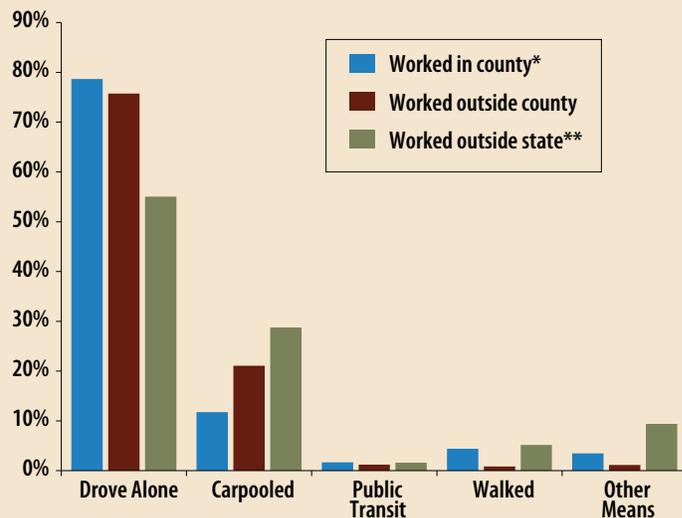
<sup>1</sup> Some data are released less frequently than every year, which is the case for the counts in Figure 7 (Table 3. Residence County to Workplace County Flows: 2006-2010).

Figure 8: Mean Interstate Travel Time to Work



Source: Census Bureau; American Community Survey

Figure 9: Bear River Means of Transportation by Place of Work



\*Exclude those residents who worked at home (approx. 5% of in-county employment)  
 \*\*Estimates have margins of error, use with caution

Source: Census Bureau; American Community Survey



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# The Influence of Industrial Diversity

BY MELAUNI JENSEN, LMI ANALYST

Labor market economists don't always agree about the most favorable structure for a thriving economy; all theories, tools and applications have their pluses and minuses. The same holds true for the discussion about industrial diversification and its influence on local economies.

A diverse economy has a broad and balanced variety of industries and doesn't rely on related businesses that provide or produce the same products or services. As we saw in the Summer 2013 issue of Local Insights, industry data provide important information about local conditions. The Quarterly Census of Employment and Wages (QCEW) derived from Utah employer's Unemployment Insurance (UI) reports provides us with this view. This comprehensive database quantifies business establishments, shows an accurate reflection of Utah employment and allows us to profile a geographic area and evaluate its diversity.

Industry diversity can lead to lower unemployment in an area. Less diverse local economies are more prone to experience higher employment instability. Diversity on the other hand, offers more options. For instance, a worker who is unemployed from one industry may find work in another industry desiring their skill set. Occupations such as accountants or sales

representatives could work in many different industries and may have an easier time finding opportunities than those who are skilled for specific industries like coal miners and skin care specialists. When one industry loses workers, the others in the area may be adding jobs. Industrial diversity can minimize this risk of unemployment and temper a downturn, or recession in the economy.

To measure industry diversity, DWS economists look to the Hachman Index. This tool was developed by Frank Hachman, an economics professor from the University of Utah. Using QCEW data and its industry classification coding system (NAICS) to identify industries, the Hachman Index compares the variety of industries in a local economy to the national variety. Economists use this formula to calculate the variable comparisons.

Utah currently ranks fourth in the nation for industrial diversity. This diversity has been a contributing factor to Utah's relatively speedy economic recovery.

Industrial diversity is one tool economists use to evaluate the underlying strength and performance of a local economy. In this issue of Local Insights, industrial diversity will be looked upon at the county level, and some revealing factors will emerge.