

local insights

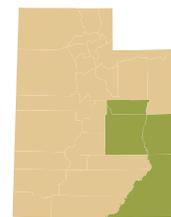


An economic and labor market analysis of the Southeast Utah Area

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Economic Diversity in Southeast Utah



BY ERIC MARTINSON, ECONOMIST

Utah's recovery from the Great Recession in 2008 has been one of the strongest in the nation. Among the reasons behind the speedy recovery is Utah's mixture of industries. In fact, Utah's economy has been consistently ranked as one of the nation's most diverse. With manufacturing in the northern Wasatch front, a varied services sector in Salt Lake County, the tech hub in Provo-Orem, mining/oil and gas in the Eastern region, and leisure and hospitality in Summit County and southern Utah, the diversity in Utah's economy is apparent. The quantitative assessment about the diversity of our state's economy comes from what is known as the Hachman Index.

The Hachman Index is a method to measure economic diversity by dividing the ratio of industry employment (usually at the state level) by the same ratio of a larger region (usually at the national level). Then each state industry comparison is adjusted for its relative employment size (called influence or weighting) producing the Hachman Index. Holding the state's economic diversity relative to the nation's reveals which states' economies mirror the

nation's industrial structure the most. Based on this scale, Utah's labor economy is the fourth-most diverse. With an index of 0.97, Utah has an industry structure that mirrors 97 percent that of the United States. Such a varied labor economy, it is argued, helps to spread the risk and fallout from industries who may suffer shocks from time to time. While Utah features a diverse assortment of industries, it is made up of counties with varying levels of diversity.

Metropolitan areas tend to have more diversity, as size creates diversity. Unsurprisingly, Salt Lake County tops the list, followed by Weber, Washington, and Davis Counties. Combined, these counties make up 68 percent of total nonfarm payroll employment in Utah. Add in Utah County and it becomes 83 percent. A map of the counties of Utah appears in Figure 1. The counties are color-coded by Hachman index score. The warmer hues (reds) show higher relative economic diversity. Counties with larger and more developed economies follow the I-15 corridor—Weber, Davis, Salt Lake, Utah, Iron, and Washington.

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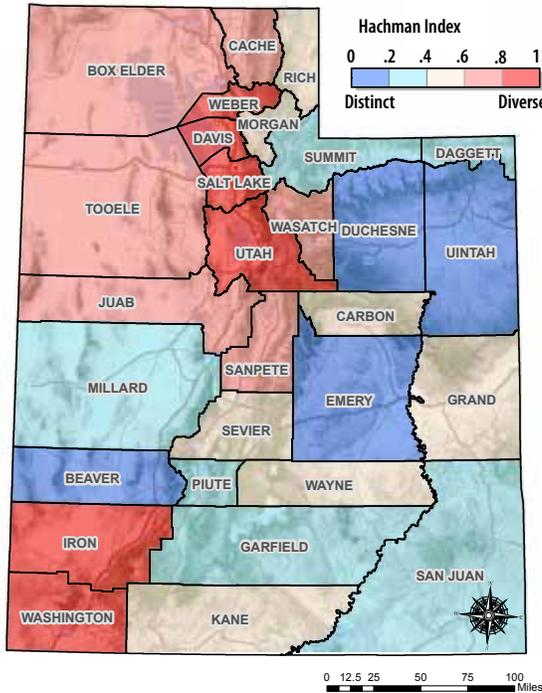
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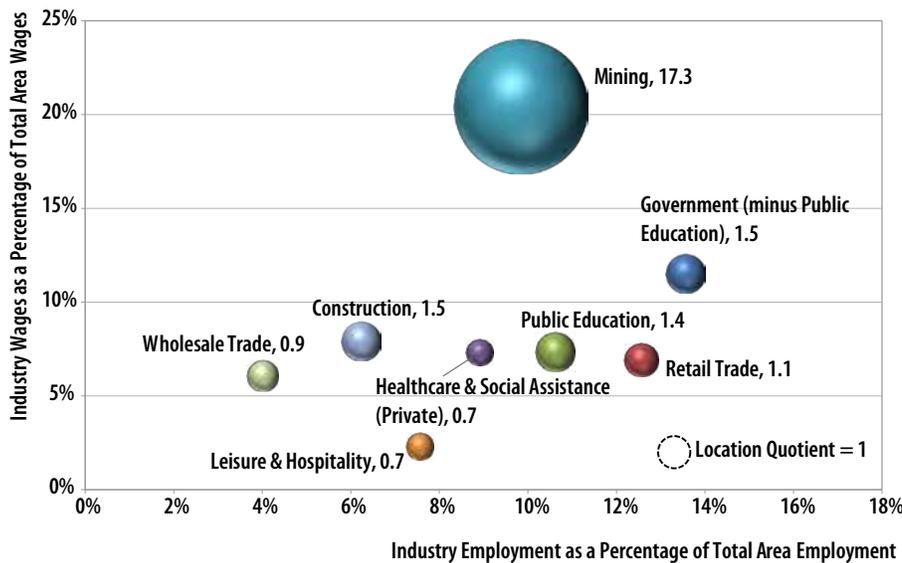


Figure 1: Utah's Industry Employment Diversity by County



*The Hachman Index is a measure of diversity. The higher number, the more diversity

Figure 2: Castle Country 2012 Important Industries, Share of Employment, Share of Total Wages and Location Quotient



Conversely, the cooler-shaded (blues) counties are rural economies, each typically based mainly on one or two export industries. Duchesne, Emery, and Uintah Counties show the coolest shading—all three are predominantly mining economies. Relatively speaking, Carbon, Grand, and San Juan Counties are a bit more diversified than Emery County. Nevertheless, these rural counties remain distant from the diversity where larger populations reside.

Figures 2 and 3 synthesize three metrics into an easy-to-identify visualization of the most important industries to Castle Country and Southeast respectively. The location of the industry bubble is determined by the x and y axes. The x-axis measures the share of industry employment as a percentage of total area employment. The y-axis measures industry wages as a percentage of total area wages. The relative size of the bubble indicates the degree of the industry's specialization in the region according to a measure called the Location Quotient (LQ): the higher the LQ, the more specialized that industry was in 2012, and the larger the bubble. For this article, the LQ measures the relative concentration of a given industry within a given locality.

In Castle Country (Figure 2) the elephant in the room is mining. In 2012, mining paid the highest share of total area wages and was the largest export industry in the region. It also ranked highly in share of industry employment. Other relatively important industries were government, construction and public education. Utilities should also be shown given its importance but is non-publishable because of confidentiality standards.

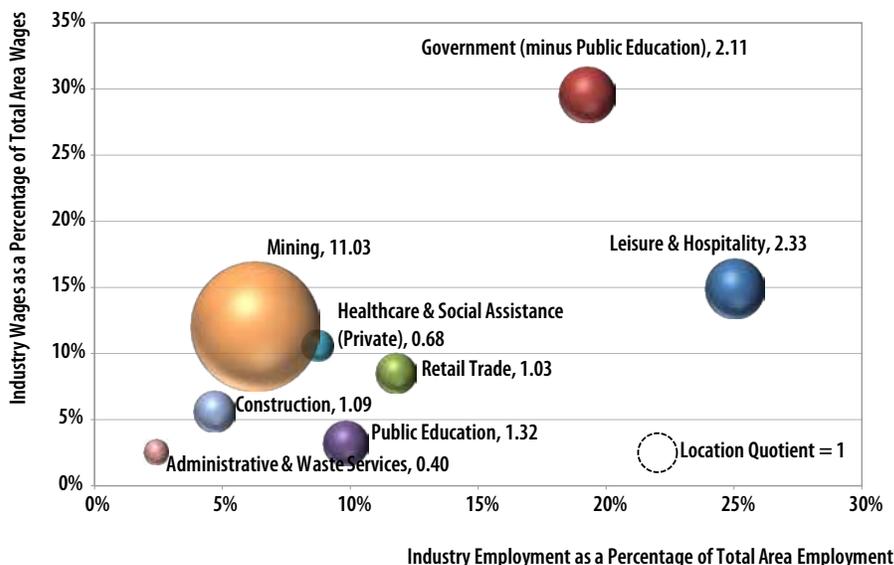
For the Southeast region (Figure 3) leisure and hospitality services and government lead the way. Both have relatively high LQs and high shares of total area employment and wages. Mining's share of total area employment and wages are less spectacular than public education, government and leisure and hospitality. Ultimately, though, both Figures 2 and 3 demonstrate that there are just one or two major industries that dominate their respective geographies in terms of industry specialization and the number employed in niche industries.

The desire for a diverse labor economy is likened to not putting all your eggs in one basket. When investing, those who want to

shield themselves from risk are advised to adopt a diversified portfolio. Similarly, one would conjecture that a more diverse labor economy with employment spread across many different industries should yield a more stable job growth rate over time. Regions which exhibit less job-growth variability are typically those whose economies are diverse. This is one reason Utah has seen the level of recovery that it has from the Great Recession. It would be reasonable to assume that this pattern would hold, to a reasonable degree, within local economies.

¹ Industry employment LQs are calculated by simply dividing the ratio of regional industry employment as a percentage of total regional employment by the same ratio at the national level.

Figure 3: Southeast 2012 Important Industries Share of Employment, Share of Total Wages and Location Quotient



Southeast Utah's 2013 Year-in-Review

BY ERIC MARTINSON, ECONOMIST

The recent release of fourth quarter Quarterly Census of Employment and Wages (QCEW) data allows for a 2013 year-in-review for Castle Country (Carbon and Emery Counties) and Southeast Utah (Grand and San Juan counties).

Castle Country, historically driven by coal mining operations, continued trending toward employment contraction as coal's decreased demand has slowed the economy. The labor market in Southeast Utah, on the other hand, was mixed but saw some measurable growth in 2013. Southeast Utah is a hotspot of tourism and recreation—from the iconic Monument Valley in San Juan County to the red rock mecca of

Arches and Canyonlands National Parks—which drive the Southeast economy.

Castle Country

The coal mining industry has been the casualty of progressively declining demand for the resource responsible for electricity generation, steel manufacturing, and other industrial production processes. The fact that the coal industry has been at the heart of Castle Country for over a century underscores the influence the industry has on the region's overall economy. During 2013, year-over change in total nonfarm employment was down 1.5 percent—with mining as one of the major job-loss culprits. Construction jobs,

too, were down in the region. Retail trade and accommodation and food services helped to offset some of the overall net employment loss.

The population in Castle Country seems to be reacting to the difficult labor economy as Carbon County's population is estimated to have dropped by 1.5 percent as of June 2013 compared to the previous year. Emery County's population fell by 1.5 percent over the same period. These are the largest estimated percentage declines in the state.

Carbon County

Total nonfarm payroll employment for Carbon County was down by 3 percent

year-over-year. Wages were also down, having fallen by 3.5 percent. The largest net decrease in jobs came from coal mining, which dropped 16 percent during 2013. This contributed to the 10-percent decrease in employment in the goods-producing sector. The services-producing sector saw some net decrease as well during 2013, which was down over 100 jobs on an annual basis for 2013. Professional and business services and government contributed largely to the net loss in services-producing employment, while gains in retail and leisure and hospitality helped to temper the losses to some extent.

A gauge of consumer (households) and investment (businesses) sentiment, year-over taxable sales were in the red during all four quarters of 2013, though the trend seemed to be improving as the year progressed.

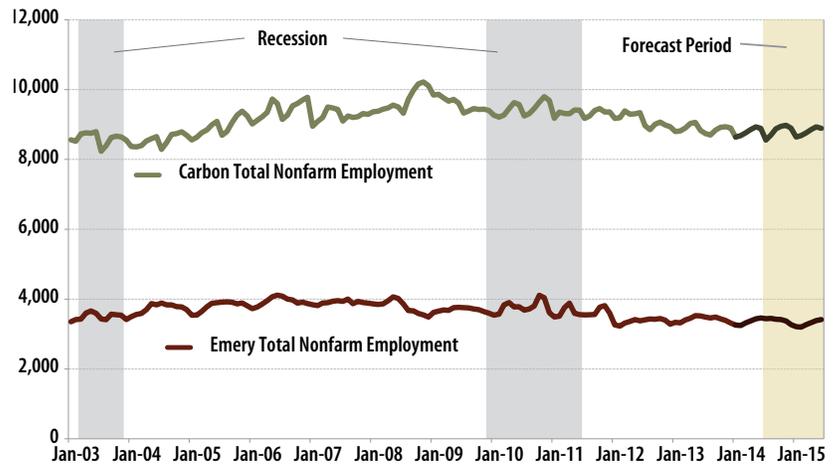
By the fourth quarter 2013, year-over taxable sales were down 1 percent. In the face of the overall employment situation in Carbon County, depressed consumption attitudes are expected.

Emery County

The Emery County labor economy, like in Carbon, has always been driven by the coal industry and in 2013 the overall picture was much the same. Interestingly, employment during 2013 showed an increase of 2 percent. Mining employment estimates were up by over 13 percent on an annual average. However, further inspection revealed that this “growth” was actually due to a non-economic factor. An example of a non-economic factor is when an employer changes counties and so the counts previously applied to one county change to another. The non-economic factor can change the time series of payroll employment but should not indicate an economic/business condition employment change. Mining employment, once the non-economic factor is adjusted, shows a steady decline throughout 2013. This, in turn, would have led to an overall lower rate of growth for total payroll employment in Emery during 2013.

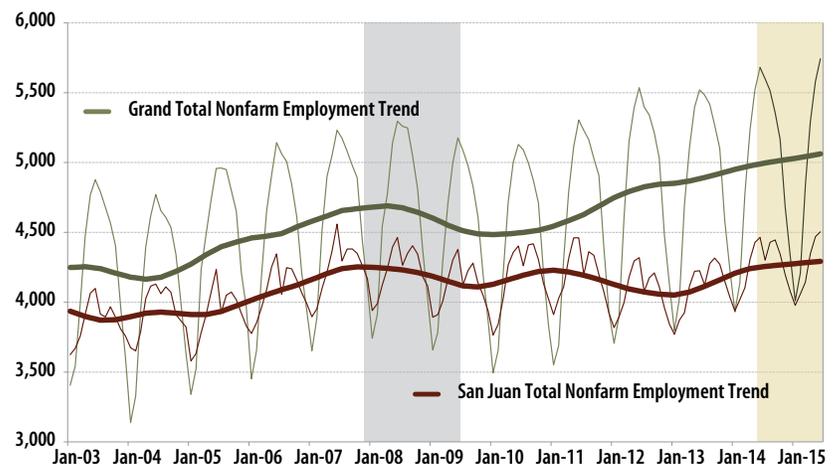
The services-providing sector was little changed in the aggregate from 2012 to 2013. Trade, transportation and utilities

Figure 4: Total Nonfarm Payroll Employment Carbon and Emery from January 2003 to June 2015^f



^f=Forecast: January 2014 to June 2014 are estimates; July 2014 to June 2015 are forecast estimates

Figure 5: Total Nonfarm Payroll Employment Grand and San Juan from January 2003 to June 2015^f



^f=Forecast: January 2014 to June 2014 are estimates; July 2014 to June 2015 are forecast estimates

was down an estimated 25 jobs, or about 3 percent, while local government was up 5 percent, or 39 jobs, year-over-year. Taxable investments were significantly up during the end of 2013, likely a sign of periodic utilities/power plant maintenance and upgrades. This translated to an overall year-over increase in total quarterly taxable sales of 6 percent at the end of 2013.

Southeast Utah

Aggregate nonfarm employment in Southeast Utah grew slightly in 2013. Much of this net job gain appeared in construction, manufacturing and health and social services. On the other hand, mining employment fell in both Grand and San Juan Counties.

Grand County

Total payroll employment for Grand County was an estimated 4,890 during 2013, a 1.3 percent increase over 2012. Responsible for over 90 percent of all nonfarm jobs in the county, the services-providing sector in Grand was up 1.6 percent year-over-year in 2013. Job losses adding up to approximately 30 services sector positions in professional and business services, health care and social services, government, and other services were more than offset by job gains in trade, transportation (35 jobs), and leisure and hospitality (48 jobs). Off-season leisure and hospitality was strong at 10 percent average job growth during the first quarter of 2013. Retail employment was also relatively strong early in the year. As the summer season began, employment growth in the tourism and recreation industries remained subdued but picked up by the third quarter of 2013. All told, the 2013 employment picture was yet another positive one for the books.

Grand County quarterly taxable sales seemed to convey ongoing growth in 2013. Taxable sales was up 9.1 percent during the first quarter, 5.7 percent during the second quarter, and resurging to 9.6 percent in the third quarter, and closed out the year at a 12 percent increase in the fourth quarter.

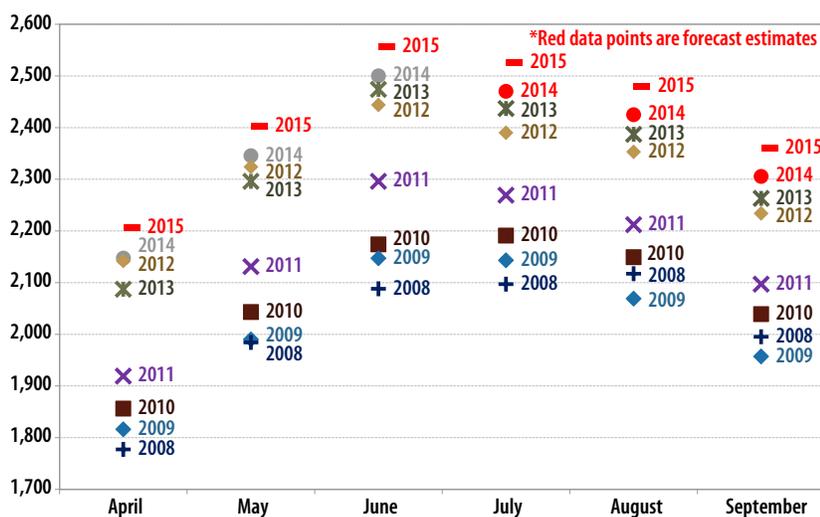
San Juan County

The San Juan County labor market appeared to be warming up by the second half of 2013. In January 2013, total employment was estimated at 3,770, down 1.2 percent from January 2012. By December, year-over employment change for the county had climbed to 5.1 percent.

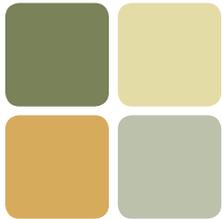
Construction in San Juan picked up late in the first quarter of 2013 and continued its growth in payroll employment as the year went on. By December, year-over employment averaged a 37-percent growth rate. This more than made up for slightly-dwindling employment in mining. Health care and social services also showed some higher-than-average growth throughout 2013, which hit 824 jobs in September and has remained in that range for the rest of the year.

Quarterly taxable sales were generally positive for 2013. First quarter taxable sales were 36 percent higher than the previous year's first quarter. Third quarter taxable sales fell by 17 percent due to the fact that taxable sales in the third quarter of 2012 were uncharacteristically high. By fourth quarter, taxable sales grew by 17.5 percent.

Figure 6: Grand County Summer Leisure and Hospitality Employment from 2008 to 2015^f



^f=Forecast: January 2014 to June 2014 are estimates; July 2014 to June 2015 are forecast estimates



Economic Diversity and Job Growth Volatility in Southeast Utah

BY ERIC MARTINSON, ECONOMIST

The strategy of a diversified labor economy is an analogue to not putting all your eggs in one basket. When investing, those who want to shield themselves from risk are advised to adopt a diversified portfolio. Similarly, a more diverse labor economy with employment spread across many different industries should yield a more stable job growth rate over time. Should the demand for a particular good or service decrease, for instance copper, and mining employment falls as a result, the availability of alternative employment opportunities would dampen and even absorb the mining employment losses. That said, variability in one industry does not necessarily translate into variability across the whole economy.

Using the Hachman Index scoring method, Utah boasts the fourth most diverse economy in the nation. The diversity of each county's labor market can also be measured by a Hachman Index score. The makeup of Utah's economy is spread across many different industries. This diversity diminishes rapidly at the county level. Salt Lake County has the most diverse spread of industry employment, however other counties have economies that are based primarily on one or two export industries, such as that of the energy-producing counties like Duchesne and Uintah Counties. Given the differing levels of economic diversity among

the various regions of the state and the hypothesis that more diversity leads to less volatility, we would expect less-diverse regions to experience more variable job fluctuation over time.

A simple linear regression on two variable provides some substantiation to the hypothesis that the variability in job growth rates of an economy is

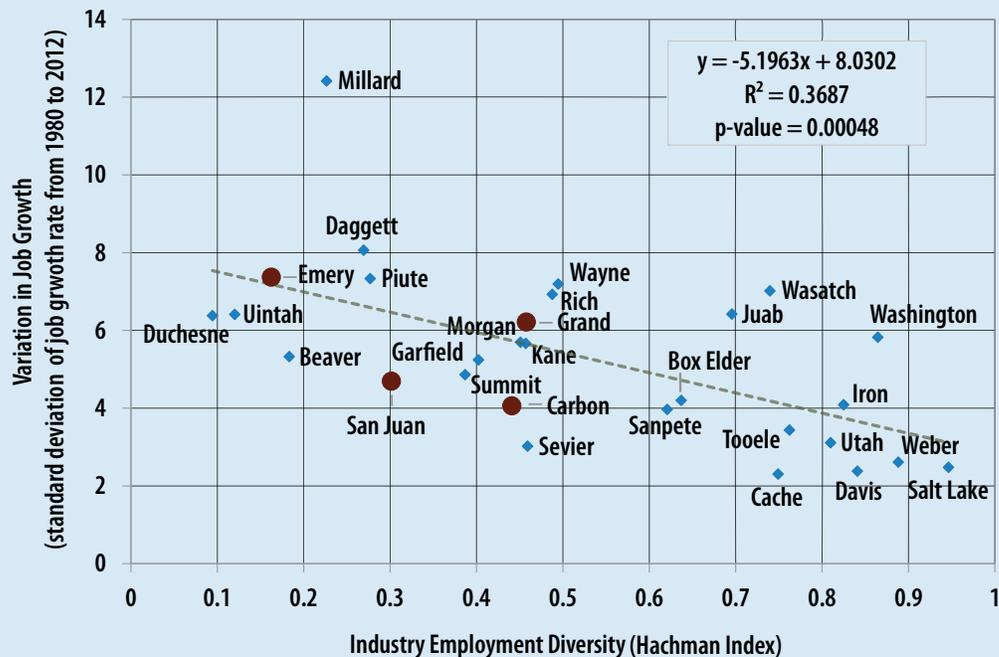
dependent on the diversity of industries. Variability, or the tendency for the year-over change in monthly employment in an area to deviate from an overall average of job growth over time, is known as the standard deviation. The standard deviations of annual job growth from 1980 to 2012 were computed for each county in Utah. Variability, tends to be a function of the

Figure 7: Variation in Job Growth by County

County	Variation in Job Growth*	County	Variation in Job Growth*
Millard	12.4	Garfield	5.2
Daggett	8.1	Summit	4.9
Emery	7.4	San Juan	4.7
Piute	7.3	Box Elder	4.2
Wayne	7.2	Iron	4.1
Wasatch	7.0	Carbon	4.1
Rich	6.9	Sanpete	4.0
Juab	6.4	Tooele	3.4
Uintah	6.4	Utah	3.1
Duchesne	6.4	Sevier	3.0
Grand	6.2	Weber	2.6
Washington	5.8	Salt Lake	2.5
Morgan	5.7	Davis	2.4
Kane	5.7	Cache	2.3
Beaver	5.3		

*Standard deviation in job growth rate from 1980 to 2012

Figure 8: Variation of Job Growth as a Function of Industry Diversity



The figure shows that the lower a measure of economic diversity (horizontal axis), the higher the level of volatility in employment changes over time (vertical axis). Conversely, the higher the Hachman Index, the less stable the employment fluctuations is.

geography's population—a very small population shows more volatile changes in employment because the gain or loss of one job per capita is greater for small areas than large ones. Figure 8 shows counties in Utah ranked by job growth variability from 1980 to 2013.

Figure 8 plots county job growth variability (y-axis) as a function of industry employment diversity (x-axis). The scatterplot is fitted with a regression line. Based on the regression, the correlation of determination (R^2) informs us that 37 percent of the variability in the y-values (job growth variability) can be accounted for by the linear relationship between job growth variability and the economic diversity of a county's labor market. While an R^2 value of 37 percent may seem a little low to those familiar

with statistical methods, a t-test (the statistical diagnostic used to substantiate the claim that lower diversity scores tend to lead to higher variability in job growth) reveals that the relationship is indeed statistically significant (with a p-value of 0.00048).

The figure shows that the lower a measure of economic diversity (horizontal axis), the higher the level of volatility in employment changes over time (vertical axis). Conversely, the higher the Hachman Index, the less stable the employment fluctuations is.

While this model does not cover the scope of possible relationships leading to job variability, it is reasonable to conclude with confidence that more diverse economies tend to lead to a more

stable employment profile. As one may expect, the least diverse economies in Utah (based on the Hachman Index), such as those in Uintah, Duchesne, and Emery counties—all heavy in energy extraction industries—tend to have higher variability in employment change over time. This may not be a problem if jobs perpetually grow in the niche industry (an unrealistic expectation), but if that niche industry suffers a shock, like Carbon and Emery counties are currently experiencing with coal mining, then a less diverse economy will translate to lower employment outcomes and a relatively more volatile job market. More economically developed, i.e., a higher degree of diversity of industries, in a given locality should lead to more stable job growth.



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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.