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local insights

uintahbasin

An economic and labor market analysis of the Uintah Basin Area

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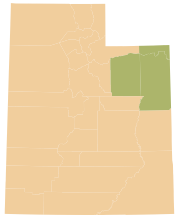
in this issue:

Economic Diversity in the Uintah Basin



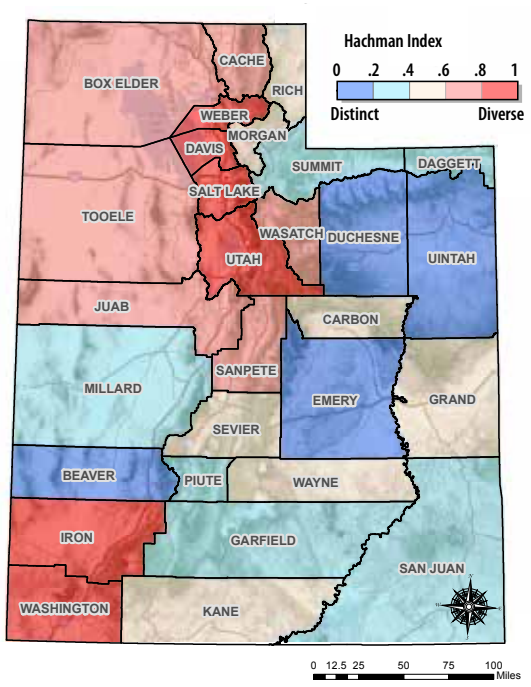
BY ERIC MARTINSON, ECONOMIST

Utah's recovery from the Great Recession in has been one of the strongest in the nation. Among the reasons behind the speedy recovery is Utah's mixture of diverse 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 (as well as throughout the rest of the state), 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. It is argued that such a varied labor economy 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.

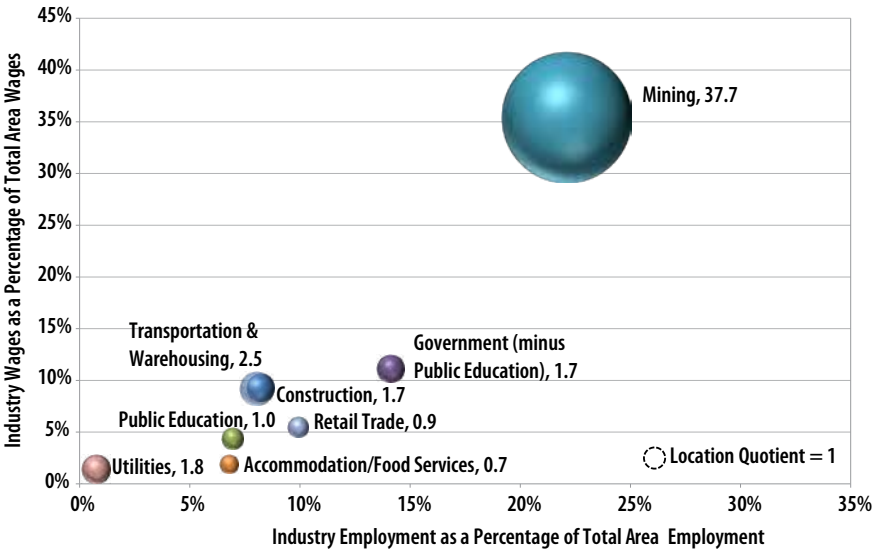
Metropolitan areas tend to have more diversity than less populated places , because size creates diversity. Unsurprisingly, Salt Lake County tops the list, followed by Weber, Washington, and Davis Counties. Combined, these counties alone make up 68 percent of

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: Uintah Basin 2012 Important Industries Share of Employment, Share of Total Wages and Location Quotient



Source: U.S. Bureau of Labor Statistics

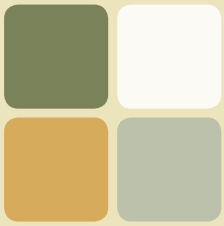
total nonfarm payroll employment for the state. Add in Utah County and it becomes over 83 percent. A map of the counties of Utah appears in Figure 1. The counties are color-coded by Hachman index score. The warmer hues (reds) show higher relative economic diversity. Counties with larger and more developed economies follow the I-15 corridor—Weber, Davis, Salt Lake, Utah, Iron and Washington.

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 lightest shading—all three are predominantly mining economies. In fact, during 2012, mining was responsible for 1 in 5 nonfarm payroll jobs in the Uintah Basin (Uintah, Duchesne, and Daggett Counties). Daggett County, a sparsely populated county which runs the Flaming Gorge National Park and dam system, is ranked 26th out of the 29 counties.

Figure 2 synthesizes three metrics into an easy-to-identify visualization of the Basin's most important industries in 2012: employment, wages and Location Quotient (LQ), or the share of local industry employment as a percentage of total local employment divided by the same ratio at the national level. The placement of the industry bubble on the chart 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. Finally, the size of the bubble indicates the degree of the industry's specialization in the region: the higher the LQ, the more specialized the industry in 2012 and the larger the bubble representing the industry. Clearly the elephant in the room here is mining. Not only did the mining industry in the Basin employ the highest share of nonfarm payroll workers in 2012, but it also paid the highest share of total wages, and its location quotient is much, much higher than that of any other industry. Mining is clearly the industry driving the

entire regional economy. This is the reason Uintah and Duchesne Counties show the least economic diversity in the state according to the Hachman Index.

Having a diversified labor economy is analogous to not putting all of the 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. Suffice it to say, regions which exhibit less job growth variability are typically those whose economies are varied. This is one reason Utah has seen the caliber of recovery that it has from the Great Recession. It would be reasonable to assume that this pattern would also hold to a reasonable degree in local economies.



The Uintah Basin'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 the Uintah Basin economy (Daggett, Duchesne, and Uintah Counties).

The Uintah Basin had a mixed year in terms of economic activity. The average level of employment in 2013 was 24,240. This was about 140 fewer jobs than the average level of employment in 2012, representing a 0.6-percent decline in total nonfarm employment. While Duchesne County netted an annual average of 2.2 percent year-over payroll employment growth during 2013, this was offset by a 2.3-percent year-over decline in jobs in Uintah County. Daggett County's aggregate job market remained virtually unchanged from 2012 to 2013. The 0.8-percent slip in total nonfarm jobs for Daggett was of little impact to the overall Uintah Basin labor market since Daggett represents less than 2 percent of total employment in the Uintah Basin.

Throughout 2013, the majority of job gains in the Basin came from the services-providing sector, with highest net gains coming from trade and leisure and hospitality. Other noticeable gains came from education, health and social services as well as local government employment. Higher services-providing growth was a shift from growth characterized more so by the goods-producing sector during 2012. Mining and construction job losses in Uintah County contributed to the overall weak performance in the goods-producing sector for 2013, which fell by 3.7 percent in the Uintah Basin compared to 2012.

Uintah County

Uintah County's annual average employment level in 2013 was 14,590, a year-over decrease of 2.3 percent for county nonfarm payroll employment. The largest employment gains in 2013 occurred in local government and other services. The deepest net declines were felt in construction, dropping 13 percent, year-over-year, and mining, which fell by over 4 percent.

The 2013 average rate of unemployment in Uintah County was 3.6 percent, two-tenths of a percentage point below that of 2012 and 0.8 percentage points lower than the state's 2013 average unemployment rate. The four week moving average of initial unemployment claims throughout 2012 were close to parity with 2007, the height of the housing boom.

Throughout 2013, the majority of job gains in the Basin came from the services-providing sector, with highest net gains coming from trade and leisure and hospitality.

The total employment change for Uintah County in January 2013 was -0.4 percent. By May, total employment declined by 3.0 percent and continued this trend until September, where year-over employment fell to -3.3 percent. By the last quarter of 2013, the trend appeared to reverse and December had pulled back year-over employment losses to 1.8 percent.

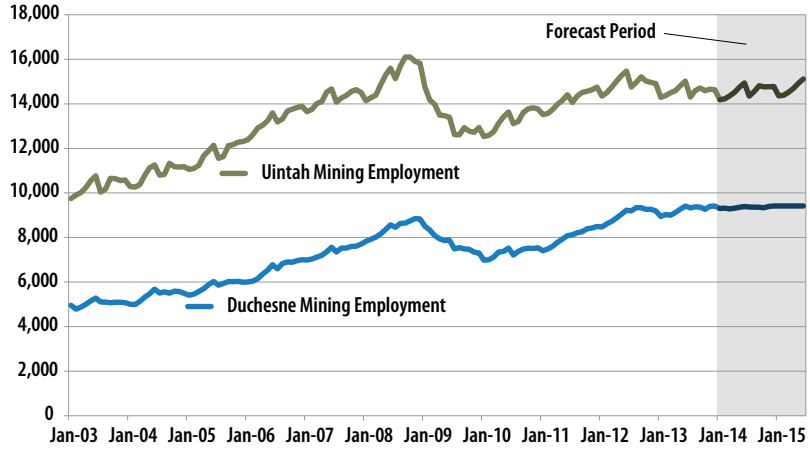
Like total employment, total area wages in Uintah County during 2013, slipped year-over by 0.5 percent, or $3.7 million. The largest declines were in the goods-producing sector, particularly construction. The services-providing sector added $3.4 million on a year-over-year basis, up 1 percent. The pinch in wages seems to have been reflected in quarterly taxable sales for 2013, which were negative throughout the year in Uintah County, though the trend improved as the year moved forward.

Duchesne County

Duchesne County continued to exhibit trends of growth, though they have become more subdued compared to the ramping up prevalent over the several previous years. The average annual level of employment in 2013 was 9,249, about 200 more jobs than in 2012. Mining payroll employment continued to grow in 2013, increasing just over 3 percent compared to 2012. Construction, on the other hand, fell an estimated 11 percent, washing out the gains made in mining. In all, the goods-producing sector remained relatively unchanged for 2013. The services-providing industries rallied to provide almost 4 percent in year-over growth. Largest employment net gains were seen in retail and wholesale trade, health care and social services, and local government. Transportation and warehousing, an important industry in Duchesne largely because of the natural resources extraction industry, fell by almost 40 jobs or roughly 4 percent for the year.

Overall, Duchesne County's 2013 unemployment rate averaged 3.5 percent, among the lowest county unemployment rates in the state. Initial unemployment claims (on a four–week, moving-average basis) were relatively low throughout 2013 and in line with an economically robust 2007.

Figure 3: Total Nonfarm Payroll Employment from January 2003 to June 2015[f]



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

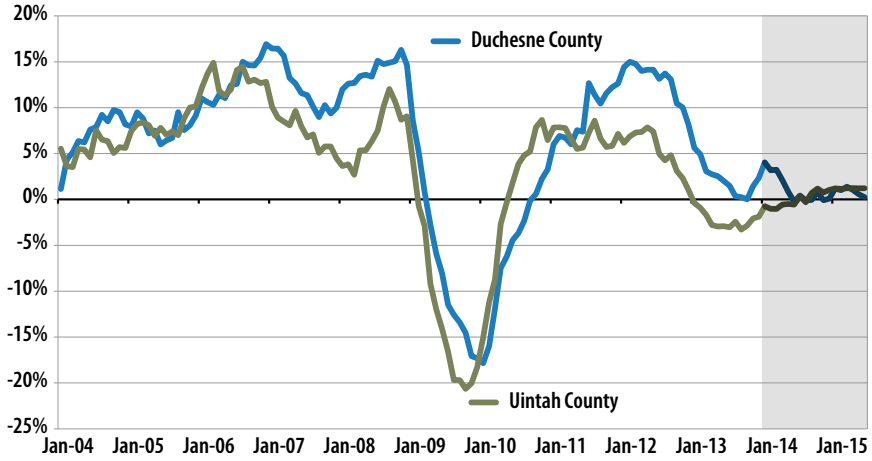
Overall, total 2013 nonfarm payroll wages saw a 4 percent increase over wages in 2012, an increase of $16.8 million. While year-over percentage change in taxable sales for Duchesne was very strong from 2010 to 2012, 2013 had relatively subdued sales growth. A gauge of consumer (households) and investment (businesses) sentiment, taxable sales showed strong growth in the first quarter of 2013 but was around 2 percent during the second and third quarters. By the fourth quarter, year-over quarterly taxable sales drifted slightly into the negative region. This is not to say that spending is starting to retreat, but that growth is starting to level off, which is not surprising given the significant amount of growth that had occurred over the last several years in the county.

Daggett County

The average annual level of employment for Daggett County in 2013 was around 400, which was virtually unchanged compared to the previous year. The goods-producing sector, admittedly not a very heavily employed sector, remained unchanged in terms of payroll employment counts. The same can be said for the services-providing sector. Leisure and hospitality, the heart of the county's private employment, picked up slightly during 2013, while the public sector saw a slight drop in payroll employment.

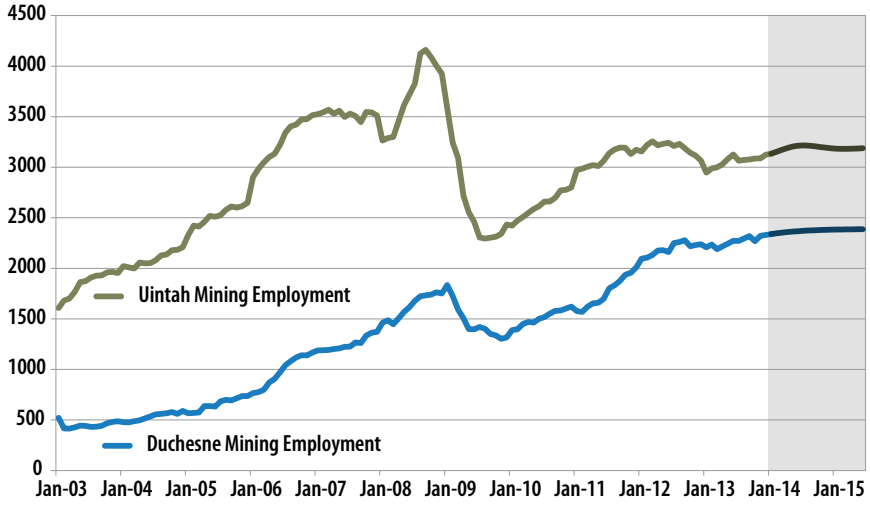
The overall picture in the Uintah Basin during 2012 was mixed. This can be characterized merely as a slower rate of growth in Duchesne County and a slight pulling-back of economic activity in Uintah County. Given the sustained and significantly high growth the Uintah Basin had been experiencing throughout most of the last decade, slower rates of growth were bound to occur. By no means is this slowing an indication of a bust in the Uintah Basin economy, but merely a leveling off, which some might welcome as a sign of stability, especially given the historical nature of the Basin's boom-bust economy.

Figure 4: Total Nonfarm Payroll Employment Year-Over-Year Percentage Change from January 2004 to June 2015[f]



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

Figure 5: Mining Payroll Employment from January 2003 to June 2015[f]



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Economic Diversity and Job Growth Volatility in the Uintah Basin

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, say for instance copper and mining employment falls as a result, the availability of alternative employment opportunities should help to dampen and even absorb the mining employment losses. That said, variability in one industry does not necessarily translate into variability across the whole economy.

Employing 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. 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.

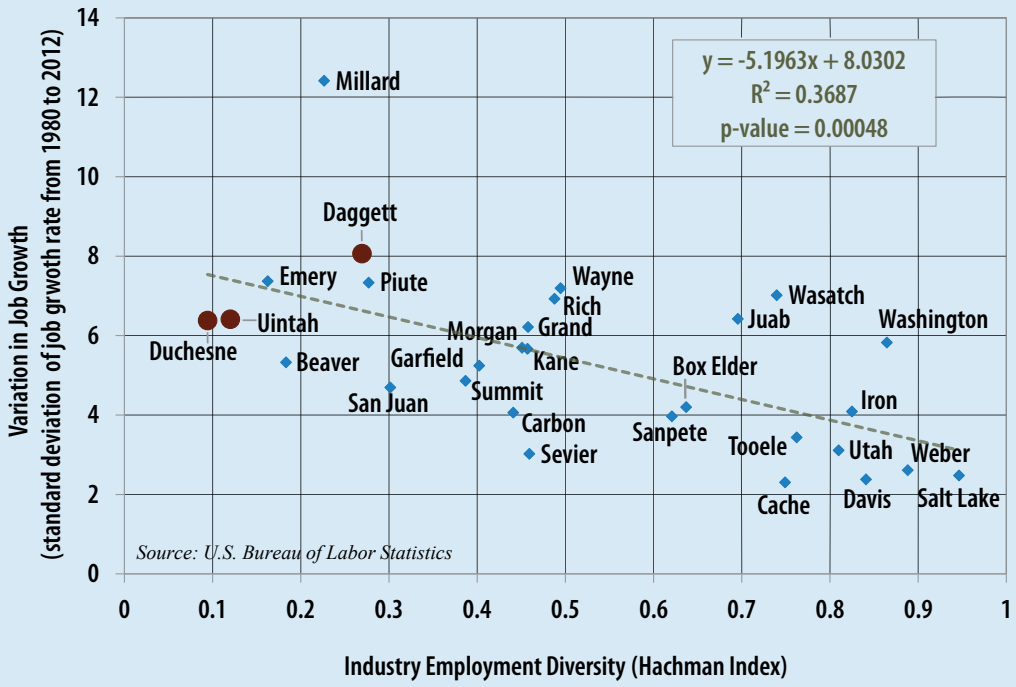
A simple linear regression on two variable provides some substantiation to the hypothesis that the variability in job growth rates of an economy is dependent on the diversity of industries. Variability, or the tendency for the year-over change in monthly employment in an area to deviate from an overall 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 was also used as a function of the geography's population—a very small population was expected to show more volatile changes in employment because the gain or loss of one job per capita should be greater

Figure 6: 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 7: Variation in 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.

for small areas than large ones. Figure 3 shows counties in Utah ranked by job growth variability from 1980 to 2013

Figure 4 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). In short, industry diversity is partly (and importantly) a factor that contributes to stability in the overall job market.

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.

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.