Job market diversification: The top trends of 2018

The diversity of job listings in an area can provide insight into the health of the job market, indicate employment trends, demonstrate the strength of the local economy, and more. In LinkUp's Q4 Job Market Diversification Report (JMDR), we continued our quarterly analysis of the distribution of job listings from LinkUp's extensive database of 5 million jobs indexed from 50,000 company websites, by occupation, company, and sector. We also looked at 2018 as a whole to identify market trends.

REPORT HIGHLIGHTS

2018 JMDR annual review [page 2]

Nearly 50% of all markets saw an increase in score in 2018, 15% saw no change, and just over one third saw a decrease.

Job market diversification trends [page 3]

In looking at scores over the year as a whole we found that depending on how diverse a market is, volatility can result from changes in one specific sector or even one specific company.

Value of job market diversification [page 4]

Diversity among sectors, companies, and job types attracts workers, and thus tax dollars to a market. We are finding local leaders and legislatures are paying attention.

Q4 2018 results [page 5]

There was a good deal of consistency among the most and least diversified markets last quarter, though Sacramento, New Orleans, and Naples, FL were newcomers to the most diversified lists, and McAllen, TX and Huntsville, AL joined the least diversified lists.
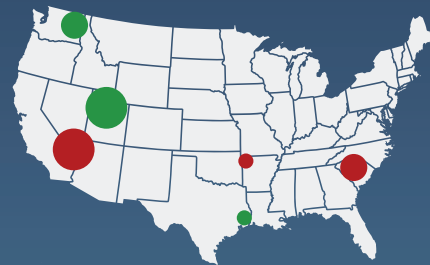
2018 TRENDS

Most Diversified Job Markets:
Large: Salt Lake City, UT
Mid: Spokane, WA
Small: Beaumont, TX

Least Diversified Job Markets:
Large: Las Vegas, NV
Mid: Columbia, SC
Small: Fayetteville, AR

% of markets saw their JMDR score increase during 2018 **48%**

Market Highlight:
Despite Las Vegas having one of the lowest scores in 2018, it had one of the most significant increases, up 8% overall.

2018 ANNUAL REVIEW

To round out our job market diversification analysis for 2018, we took a look at the year as a whole to better understand how markets trended over time.

72 out of the 150 markets (48%) increased their JMDR score over the four quarters. 22 markets (15%) had virtually no change in their scores while 56 markets (37%) decreased their JMDR scores throughout 2018. The map below shows where the markets are located and their 2018 change in JDMR score indicated by green (increase), yellow (no change) or red (decrease).

2018 JMDR SCORE TRENDS	MARKET SIZE			
	Large	**Mid**	**Small**	**Total**
● **Increase**	17	23	32	72
● **No Change**	9	10	3	22
● **Decrease**	24	17	15	56
TOTAL	50	50	50	150

● Increase
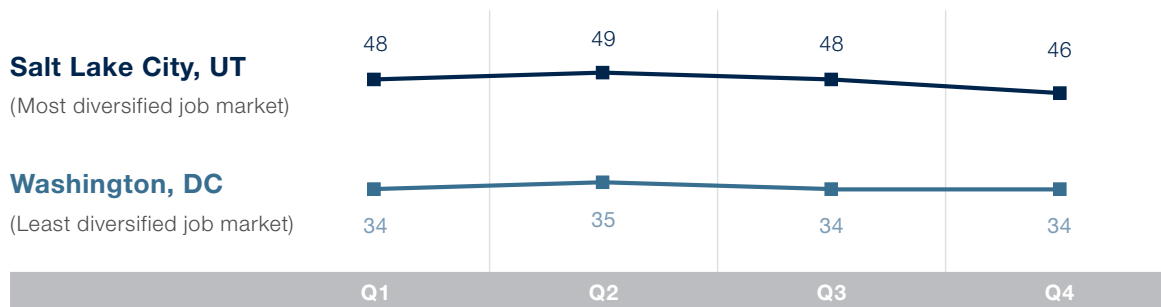● No change
● Decrease

Source: LinkUp
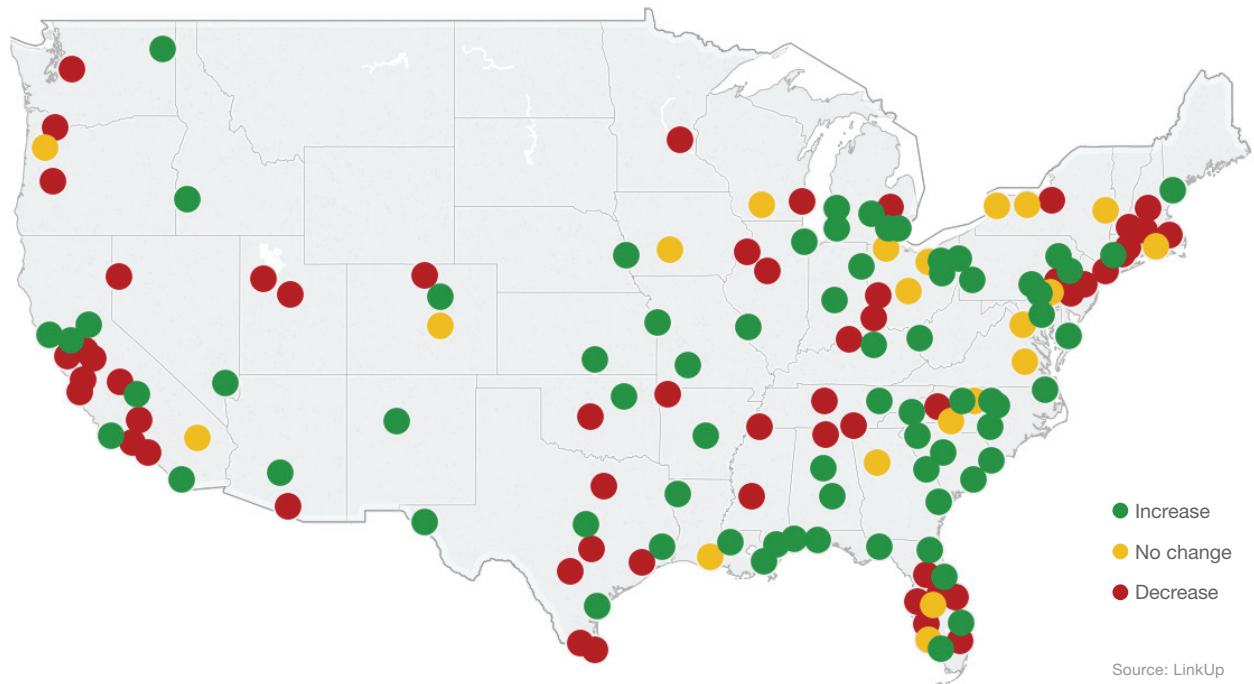
2018 ANNUAL REVIEW (CONTINUED)

How does a market increase or decrease its job market diversification score?

Markets are scored based on the variance of job openings across sectors, companies, and occupations. When a market has job openings spread across all three parameters, then no single parameter can dominate the market and in turn lower the JMDR score.

Salt Lake City, for example, has had the highest JMDR score among the large markets throughout all of 2018. Numerous large businesses across a variety of sectors call Salt Lake City home. The market is attractive to these employers because of its strong labor-force, which the *Wall Street Journal* recently wrote "Utah shows how labor-force growth fuels economic growth. The state has outpaced the country in economic expansion since 2010."[1] Businesses can only grow if there is a workforce to power them. Utah's impressive rate of labor-force growth is a result of high birth rates among residents (highest in the US in 2018), as well as migration rates from other states and countries.[2]

2018 Quarterly Job Market Diversification Scores

	Q1	Q2	Q3	Q4
Salt Lake City, UT (Most diversified job market)	48	49	48	46
Washington, DC (Least diversified job market)	34	35	34	34

Washington, DC on the other hand has consistently been one of the least diversified markets. The lack of job market diversification in DC has been glaringly obvious during the most recent government shutdown which started in December 2018. 52% of all jobs in D.C., more than 1.7 million, are linked to the federal government.[3] With more than half of its workforce focused in one sector, Washington, DC is a perfect example of low job market diversification.

During the shutdown we saw job seekers take to the web in search of part-time employment in other sectors to make ends meet. Searches for part-time jobs on LinkUp increased 74% from December through January, and searches for companies such as Uber, Lyft, Shipt, Instacart, and Doordash increased by 194%. The real winner of the shutdown may have been these gig employers.

The good news for the DC area is that the addition of Amazon's newly announced headquarters in Crystal City will improve its job market diversification standing. With 62,000 new jobs projected by 2030, and as much as $15 billion in new economic activity, the impacts will surpass the technology and distribution sectors.[4]

2018 ANNUAL REVIEW (CONTINUED)

In our least diversified job markets, we have found that even one company can bring down a market's diversification score. Taco Bell has increased its job openings in the Northeast by more than 90% during 2018. That one company drove JMDR scores in markets like Worcester and Springfield, MA to plummet scores from 44 and 53 respectively in Q1 to scores of 27 and 26 in Q4.

The value of diversification

We have found over the past year that legislatures and business leaders see the value in a diversified job market, despite it not being something officially measured prior to LinkUp's Job Market Diversification Report.

Oklahoma City for example was in the top five for Q4, as well as the top five for all of 2018. This market stays diverse because as one company loses jobs in the area, other companies are able to offer more jobs. The share of job openings among the top 10 companies based on job openings has stayed around 30% each quarter, which shows stability in the market. As the University of Oklahoma lost 400 job openings this year, the State of Oklahoma added 300 job openings.

Chad Wilkerson, the branch executive and vice president at the Oklahoma City Branch of the Federal Reserve Bank of Kansas City recently spoke to the value of his diverse job market in an interview. "Growth in 2018 was not limited to one sector of the economy, as the energy, manufacturing and services industries all posted solid increases while income in the agriculture sector showed some stability," said Wilkerson. "With rising employment and positive outlooks across most industries, Oklahoma's economy heading into 2019 also appears positive."[5]

Additionally, some markets such as Scranton-Wilkes Barre and Las Vegas have started investing in initiatives to promote job market diversity, and it may be paying off. Las Vegas was in the bottom five among large markets for both Q4 and all of 2018, however it still had one of the largest increases in JMDR score from Q1 to Q4 2018 overall, 8%. Legislatures in Las Vegas have recognized the need to diversify their economy, and to address this have employed tax incentives and a series of initiatives called "Nevada Blueprint," to facilitate it.[6]

Q4 RESULTS: LARGE MARKETS (POPULATION > 1,100,000)

For the large markets, Salt Lake City, Buffalo, Sacramento, New Orleans, and Oklahoma City are the most diversified while Tampa, Miami, New York, Las Vegas, and San Jose are the least diversified.

MOST DIVERSIFIED JOB MARKETS

	MARKET	2018 Q4 SCORE
1	Salt Lake City, UT	46.5
2	Buffalo, NY	45.5
3	Sacramento, CA	44.8
4	New Orleans, LA	43.8
5	Oklahoma City, OK	43.7

LEAST DIVERSIFIED JOB MARKETS

	MARKET	2018 Q4 SCORE
46	Tampa, FL	33.5
47	Miami, FL	33.2
48	New York, NY	32.9
49	Las Vegas, NV	32.2
50	San Jose, CA	31.3

Q4 is the first time Sacramento and New Orleans have cracked the top five markets. With Sacramento specifically, we saw a large drop in job listings in the health care sector, nearly 20% from Q1 to Q4 in 2018. Job openings for nurses used to account for almost 10% of all job openings in Sacramento, but by Q4 these openings fell to 3% of all job openings. This drop makes Sacramento less reliant on the health care sector, now that job openings are more evenly spread across a wider variety of sectors.
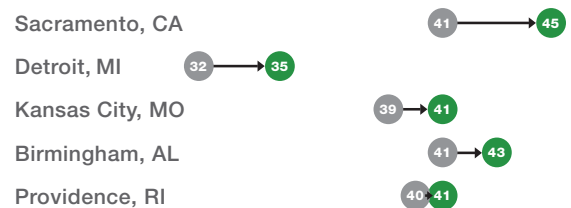
Most significant changes

The biggest difference between the markets with the greatest increase in scores and those with the greatest decrease in scores is the change in job openings.
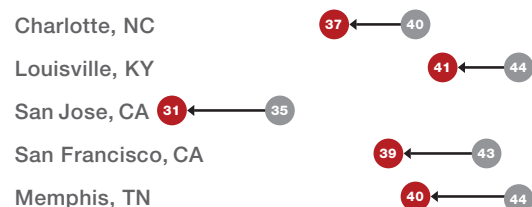
Sacramento, Detroit, Kansas City, Birmingham, and Providence all reduced the number of job openings between Q3 to Q4. In all five markets the job reductions came from their largest sectors which allowed other sectors to account for a greater share of job openings.

Markets become more diversified when job openings are spread out over more sectors. To illustrate this difference, Providence reduced its job openings by 6% between Q3 and Q4. The five sectors with the most job openings went from representing 43% of all job openings in Q3 down to 38% in Q4. On the other hand, Memphis increased its job openings by 5% in Q4 and the top five sectors increased their share from 40% in Q3 to 45% in Q4.

POSITIVE CHANGE IN JMDR SCORE (Q3 TO Q4)

Market	Q3	Q4
Sacramento, CA	41	45
Detroit, MI	32	35
Kansas City, MO	39	41
Birmingham, AL	41	43
Providence, RI	40	41

NEGATIVE CHANGE IN JMDR SCORE (Q3 TO Q4)

Market	Q4	Q3
Charlotte, NC	37	40
Louisville, KY	41	44
San Jose, CA	31	35
San Francisco, CA	39	43
Memphis, TN	40	44

Q4 RESULTS: MID-MARKETS (POPULATION: 542,000 – 1,100,000)

Among the mid-markets, the five most diversified are Spokane, Bridgeport, Scranton, Provo, and Oxnard. The five least diversified are McAllen, Harrisburg, Columbia, Springfield, and Worcester.

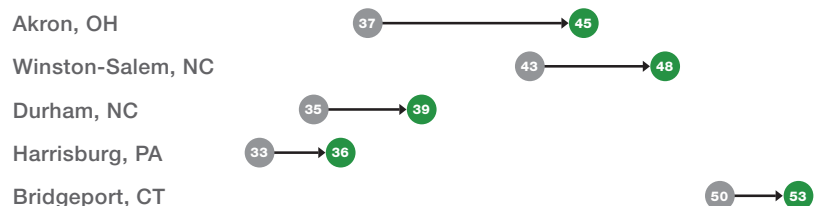| MOST DIVERSIFIED JOB MARKETS		LEAST DIVERSIFIED JOB MARKETS	
MARKET	2018 Q4 SCORE	MARKET	2018 Q4 SCORE
1 Spokane, WA	56.5	46 Mcallen, TX	36.1
2 Bridgeport, CT	52.9	47 Harrisburg, PA	36.0
3 Scranton, PA	51.9	48 Columbia, SC	26.9
4 Provo, UT	51.3	49 Springfield, MA	26.8
5 Oxnard, CA	51.2	50 Worcester, MA	26.1

All five of the most diversified markets have been in the top five in at least one other quarter in 2018. McAllen, TX is the only new market in the bottom five. McAllen dropped into the bottom due to jobs staying flat across sectors, with the exception of its largest sector, hospitals, which increased 11%. As a result, jobs at hospitals now account for 25% of all job openings in McAllen. If the market continues to rely so heavily on hospitals to provide jobs for their workforce, they will continue to lack diversity in their job market.
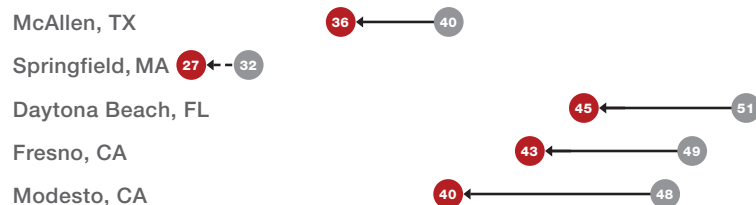
Most significant changes

These mid-sized markets all have one sector that has substantially more job openings than any other sector. This graphic shows the markets with the highest increase in score between Q3 to Q4 and the markets with greatest decrease in scores. The difference between the two groups is the change in job openings in one dominant sector. The markets with the highest increase in scores all reduced the number of job openings in their dominate sector which drove them to become less reliant on just one sector.

In Akron, OH for example, 42% of job openings were in the Food Service sector in Q3. That sector specifically dropped to 31% in Q4, which drove Akron's score from 37 in Q3 to 45 in Q4. In contrast, the top sector based on jobs in Modesto, CA went from representing 13% of all jobs in Q3 to 25% in Q4. That one sector change sent Modesto's JMDR rank from #20 in Q3 all the way down to #41 in Q4.

POSITIVE CHANGE IN JMDR SCORE (Q3 TO Q4)

Akron, OH	37 → 45
Winston-Salem, NC	43 → 48
Durham, NC	35 → 39
Harrisburg, PA	33 → 36
Bridgeport, CT	50 → 53

NEGATIVE CHANGE IN JMDR SCORE (Q3 TO Q4)

McAllen, TX	40 → 36
Springfield, MA	32 → 27
Daytona Beach, FL	51 → 45
Fresno, CA	49 → 43
Modesto, CA	48 → 40

Q4 RESULTS: SMALL MARKETS (POPULATION: 338,000 - 541,000)

Among the small markets, Santa Barbara, Vallejo, Beaumont, Salem, and Naples were the most diversified while Huntsville, Ann Arbor, Youngstown, Peoria, and Fayetteville were the least diversified.

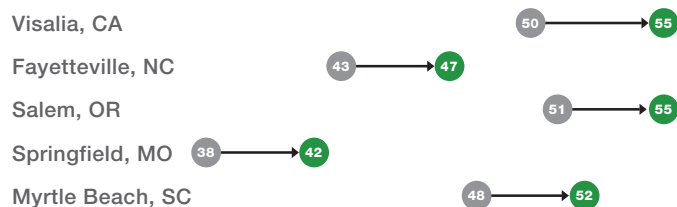| MOST DIVERSIFIED JOB MARKETS		LEAST DIVERSIFIED JOB MARKETS	
MARKET	**2018 Q4 SCORE**	**MARKET**	**2018 Q4 SCORE**
1 Santa Barbara, CA	56.9	46 Huntsville, AL	40.6
2 Vallejo, CA	56.7	47 Ann Arbor, MI	40.2
3 Beaumont, TX	56.2	48 Youngstown, OH	39.1
4 Salem, OR	55.2	49 Peoria, IL	38.6
5 Naples, FL	55.0	50 Fayetteville, AR	36.0

Among the small markets, Naples finally earned a spot in the top five, while Huntsville hit the bottom five for the first time in 2018. Looking at Huntsville specifically, it has one of the strongest economies in the south but relies heavily on aerospace, manufacturing, and professional services, which means diversity in their marketplace is low. The top five sectors in Huntsville accounted for 60% of job openings in both Q3 and Q4 even though job openings between Q3 to Q4 actually decreased 6%. Job market diversity is likely to remain low as investments in the aerospace and defense sector continue to increase with companies such as Blue Origin and Aeroject Rocketdyne planning new facilities and new jobs.

Most significant changes

Small markets tend to cluster most of their job openings into about 25 out of a possible 95 sectors. Because these markets rely on a much smaller group of sectors, when one or two sectors has a large increase or decrease in job openings it can severely impact the market's job market diversity.

Fayetteville, for example, in Q3 had a spike in job openings in the national security sector due to defense contractor Booz Allen Hamilton adding 208 jobs.[7] In Q3 the national security sector accounted for 10% of all job openings in Fayetteville. Once those jobs were filled by the start of Q4, the sector returned to representing 4% of all job openings which in turn drove Fayetteville's JMDR score from 43 in Q3 to 47 in Q4.

POSITIVE CHANGE IN JMDR SCORE (Q3 TO Q4)

Visalia, CA	50 →	55
Fayetteville, NC	43 →	47
Salem, OR	51 →	55
Springfield, MO	38 →	42
Myrtle Beach, SC	48 →	52

NEGATIVE CHANGE IN JMDR SCORE (Q3 TO Q4)

Youngstown, OH	39 ←	41
Canton, OH	46 ←	49
Hickory, NC	51 ←	54
Brownsville, TX	48 ←	53
Ocala, FL	42 ←	48
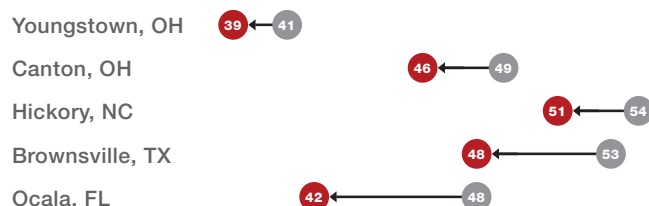
APPENDIX A: METHODOLOGY

LinkUp has created a proprietary metric that calculates the diversity of job openings in a given geographic region. The Job Market Diversification Report (JMDR) does not measure diversity in terms of demographics of the population, but rather the diversification of the job openings within the geography. The Report provides a composite score for each geography using the following parameters:

- Distribution of sectors with job openings (based on 3-digit NAICS codes)
- Distribution of companies with job openings (based on companies in the LinkUp Index)
- Distribution of occupations with job openings (based on the U.S. BLS Standard Occupation Classification)

MARKET BREAKDOWN

LinkUp has calculated job market diversification for the top 150 markets (i.e. Metropolitan Statistical Areas as defined by the U.S. Office of Management and Budget) based on U.S. population. The markets have been grouped into large markets (population > 1,100,000), mid markets (population 542,000-1,100,000), and small markets (population 338,000-541,000).

METHODOLOGY

The diversification of a metropolitan statistical area is calculated by adding the number of rows (i.e. sectors, companies, or occupations) with >0 job openings and then breaking that count into quintiles. The number of job openings are then summed within each quintile and divided by the total number of job openings to determine the percent of job openings in each quintile (Figure 1). The quintile percentages are then compared to the variance from "perfect distribution" (i.e. 20% Ex. 1 in Fig. 1) for each quintile. Finally, the sum of the variance is subtracted from 160 to invert the final score so the higher number indicates a better score (Fig 2).

Figure 1: Job Openings in Each Quintile as % of Total Jobs

Quintiles	Ex 1	Ex 2	Ex 3	Ex 4	Ex 5	Ex 6
Top Quintile	20%	30%	40%	60%	80%	100%
2nd Quintile	20	25	30	15	10	0
3rd Quintile	20	20	15	15	6	0
4th Quintile	20	15	10	5	3	0
Bottom Quintile	20	10	5	5	1	0
Total	100	100	100	100	100	100

Figure 2: Absolute Difference from "Perfect Distribution"

Quintiles	Ex 1	Ex 2	Ex 3	Ex 4	Ex 5	Ex 6
Top Quintile	0pp	10pp	20pp	40pp	60pp	80pp
2nd Quintile	0	5	10	5	10	20
3rd Quintile	0	0	5	5	14	20
4th Quintile	0	5	10	15	17	20
Bottom Quintile	0	10	15	15	19	20
Total	0	30	60	80	120	160
SCORE:	160	130	100	80	40	0

Figure 3 shows an example of how the composite score for the San Francisco market is calculated. A score is calculated for each parameter and then those three scores are averaged for a composite score of (ie. 50).

Figure 3: Example Calculation For San Francisco

Parameters	Occupations		Sectors		Companies	
	% of Jobs in Quintile	Variance from 20%	% of Jobs in Quintile	Variance from 20%	% of Jobs in Quintile	Variance from 20%
Top 20%	76%	56pp	70%	50pp	79%	59pp
21-40%	15	5	19	1	12	8
41-60%	6	14	8	12	6	14
61-80%	2	18	3	17	2	18
81-100%	1	19	0	20	1	19
Sum of Variances:		112		99		118
Parameter Scores (160-Sum of Variances):		48		61		42
DIVERSIFICATION SCORE: 50						

APPENDIX B: LARGE MARKET JOB MARKET DIVERSIFICATION DATA (POPULATION > 1,100,000)

2018 Q4 RANK	MARKET	POPULATION	Q1 2018	Q2 2018	Q3 2018	Q4 2018	AVERAGE QUARTERLY SCORE
1	Salt Lake City-Ogden, UT	1,203,105	48.4	49.3	47.6	46.5	47.9
2	Buffalo-Niagara Falls, NY	1,136,856	45.5	46.0	46.6	45.5	45.9
3	Sacramento-Arden-Arcade-Roseville, CA	2,324,884	36.7	40.2	41.2	44.8	40.7
4	New Orleans-Metairie-Kenner, LA	1,275,762	42.3	43.6	43.2	43.8	43.2
5	Oklahoma City, OK	1,383,737	45.0	44.9	45.0	43.8	44.6
6	Austin-Round Rock, TX	2,115,827	44.6	43.4	44.6	43.7	44.1
7	Jacksonville, FL	1,504,980	40.9	43.7	44.4	43.5	43.1
8	Raleigh-Durham-Chapel Hill, NC	1,335,079	42.2	43.9	44.2	43.3	43.4
9	San Diego-Carlsbad-San Marcos, CA	3,337,685	38.6	41.2	42.5	43.2	41.4
10	Birmingham-Hoover, AL	1,149,807	36.4	41.9	41.2	42.9	40.6
11	Denver-Aurora, CO	2,888,227	41.5	41.7	42.0	42.2	41.9
12	Milwaukee-Waukesha-West Allis, WI	1,576,236	41.9	40.4	42.1	41.2	41.4
13	Providence-New Bedford-Fall River, RI-MA	1,621,122	41.2	41.9	39.9	41.2	41.1
14	Louisville/Jefferson County, KY-IN	1,293,953	45.1	45.1	44.1	41.0	43.8
15	Hartford-West Hartford-East Hartford, CT	1,210,259	44.0	43.3	40.4	40.9	42.1
16	Kansas City, MO-KS	2,128,912	38.4	38.2	39.0	40.8	39.1
17	Nashville-Davidson-Murfreesboro-Franklin, TN	1,903,045	41.7	42.5	40.9	40.8	41.5
18	Cincinnati-Middletown, OH-KY-IN	2,179,082	41.5	41.6	40.8	40.7	41.2
19	Virginia Beach-Norfolk-Newport News, VA	1,725,246	37.1	38.8	40.1	40.1	39.0
20	Phoenix-Mesa-Scottsdale, AZ	4,737,270	39.5	41.0	41.0	40.1	40.4
21	Memphis, TN-AR-MS	1,348,260	47.4	45.5	43.7	39.8	44.1
22	Houston-Sugar Land-Baytown, TX	6,892,427	40.8	42.7	40.9	39.5	41.0
23	San Francisco-Oakland-Fremont, CA	4,727,357	40.1	43.1	42.7	39.1	41.3
24	Portland-Vancouver-Beaverton, OR-WA	2,453,168	41.7	41.6	41.1	39.0	40.9
25	Indianapolis-Carmel, IN	2,028,614	36.4	39.3	39.5	39.0	38.6
26	San Antonio, TX	2,473,974	40.9	41.0	40.9	38.8	40.4
27	Pittsburgh, PA	2,333,367	37.3	39.0	40.2	38.2	38.7
28	Chicago-Naperville-Joliet, IL-IN-WI	9,533,040	37.0	37.5	37.2	38.1	37.5
29	Richmond-Petersburg, VA	1,294,204	37.6	37.9	37.7	38.1	37.8
30	Cleveland-Elyria-Mentor, OH	2,058,844	37.5	39.8	38.1	38.0	38.3
31	Baltimore-Towson, MD	2,808,175	36.0	37.0	37.4	37.6	37.0
32	Boston-Cambridge-Quincy, MA-NH	4,836,531	39.8	38.1	38.9	37.3	38.5
33	St. Louis, MO-IL	2,807,338	36.5	37.8	38.9	37.3	37.6
34	Columbus, OH	2,078,725	37.1	38.1	37.5	37.2	37.5
35	Atlanta-Sandy Springs-Marietta, GA	5,884,736	36.9	37.6	36.5	37.1	37.0
36	Riverside-San Bernardino-Ontario, CA	4,580,670	36.9	38.3	38.8	37.1	37.8
37	Charlotte-Gastonia-Concord, NC-SC	2,525,305	36.6	40.0	39.7	36.9	38.3
38	Los Angeles-Long Beach-Santa Ana, CA	13,353,907	38.4	38.1	37.1	36.8	37.6
39	Minneapolis-St. Paul-Bloomington, MN-WI	3,600,618	39.1	37.9	37.2	36.8	37.8
40	Philadelphia-Camden-Wilmington, PA-NJ-DE	6,096,120	39.1	39.1	37.1	36.5	37.9
41	Orlando-Kissimmee, FL	2,509,831	37.1	37.9	38.5	36.0	37.4
42	Dallas-Fort Worth-Arlington, TX	7,399,662	38.6	38.1	36.3	36.0	37.3
43	Detroit-Warren-Livonia, MI	4,313,002	32.4	33.0	32.1	34.6	33.0
44	Seattle-Tacoma-Bellevue, WA	3,867,046	36.7	35.4	35.3	34.5	35.4
45	Washington-Arlington-Alexandria, DC-VA	6,216,589	34.1	34.6	34.1	33.9	34.2
46	Tampa-St. Petersburg-Clearwater, FL	3,091,399	37.9	36.5	34.6	33.5	35.6
47	Miami-Fort Lauderdale-Pompano Beach, FL	6,158,824	34.9	35.9	34.6	33.3	34.7
48	New York-Northern New Jersey-Long Island, NY-NJ	20,320,876	34.4	34.5	33.9	32.9	33.9
49	Las Vegas-Paradise, NV	2,204,079	25.4	30.8	33.4	32.2	30.4
50	San Jose-Sunnyvale-Santa Clara, CA	1,998,463	34.7	33.7	34.8	31.3	33.6

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APPENDIX B: MID MARKET JOB MARKET DIVERSIFICATION DATA (POPULATION 542,000 - 1,100,000)

2018 Q4 RANK	MARKET	POPULATION	Q1 2018	Q2 2018	Q3 2018	Q4 2018	AVERAGE QUARTERLY SCORE
1	Spokane, WA	564,236	52.4	56.3	56.1	56.5	55.4
2	Bridgeport-Stamford-Norwalk, CT	949,921	51.9	50.7	50.4	52.9	51.5
3	Scranton--Wilkes-Barre--Hazleton, PA	555,426	50.9	52.8	49.4	51.9	51.3
4	Provo-Orem, UT	617,675	55.8	55.5	53.2	51.3	53.9
5	Oxnard-Thousand Oaks-Ventura, CA	854,223	52.2	51.7	51.8	51.2	51.7
6	Tulsa, OK	990,706	46.1	50.1	50.9	49.9	49.3
7	Charleston-North Charleston, SC	775,831	49.1	47.7	48.8	49.9	48.9
8	Omaha-Council Bluffs, NE-IA	933,316	35.9	47.5	48.0	49.6	45.2
9	Baton Rouge, LA	834,159	45.1	49.7	47.9	49.5	48.1
10	New Haven-Bridgeport-Stamford-Danbury, CT	860,435	50.5	50.6	48.5	49.1	49.7
11	Lakeland-Winterhaven, FL	686,483	48.1	50.5	50.5	48.5	49.4
12	Greensboro-High Point, NC	761,184	48.3	48.9	49.4	48.4	48.8
13	Cape Coral-Fort Myers, FL	739,224	48.3	49.6	49.1	48.3	48.8
14	Colorado Springs, CO	723,878	48.5	47.8	47.7	48.2	48.1
15	Winston-Salem, NC	667,733	35.3	38.0	43.4	47.9	41.1
16	Boise City-Nampa, ID	709,845	43.7	45.6	49.6	47.8	46.7
17	Augusta-Richmond County, GA-SC	600,151	46.7	47.7	47.2	47.7	47.3
18	Greenville-Mauldin-Easley, SC	895,923	44.6	47.7	47.8	47.6	47.0
19	Stockton-Lodi, CA	745,424	50.5	52.5	50.0	47.4	50.1
20	Honolulu, HI	988,650	46.3	47.6	47.1	46.5	46.9
21	Chattanooga, TN-GA	556,548	47.8	46.5	44.2	46.5	46.3
22	Wichita, KS	645,628	45.4	46.2	47.2	46.3	46.3
23	Deltona-Daytona Beach-Ormond Beach, FL	649,202	43.5	46.2	51.0	45.4	46.5
24	Sarasota-Bradenton-Venice, FL	804,690	47.1	47.9	44.6	45.0	46.1
25	Akron, OH	703,505	40.5	41.2	37.1	44.5	40.8
26	Albuquerque, NM	910,726	43.4	44.0	43.2	44.4	43.8
27	Jackson, MS	578,715	45.1	47.8	46.3	44.3	45.9
28	Madison, WI	654,230	44.3	46.2	44.9	43.8	44.8
29	El Paso, TX	844,818	41.3	43.5	45.9	43.7	43.6
30	Bakersfield, CA	893,119	47.3	48.1	46.1	43.5	46.3
31	Fresno, CA	989,255	45.8	50.2	49.3	43.4	47.2
32	Grand Rapids-Wyoming, MI	1,059,113	41.9	44.0	43.5	43.1	43.1
33	Dayton-Springfield, OH	803,416	45.1	47.0	44.4	43.0	44.9
34	Knoxville, TN	877,104	41.3	42.6	41.1	42.4	41.9
35	Syracuse, NY	654,841	43.0	46.7	44.9	42.2	44.2
36	Albany-Schenectady-Troy, NY	886,188	41.4	43.5	42.0	41.8	42.2
37	Des Moines-West Des Moines, IA	645,911	41.7	40.8	39.5	41.5	40.9
38	Little Rock-North Little Rock-Conway, AR	738,344	37.6	39.4	41.6	41.3	40.0
39	Toledo, OH	603,668	40.6	43.9	43.2	40.3	42.0
40	Tucson, AZ	1,022,769	42.4	41.7	41.5	40.2	41.5
41	Modesto, CA	547,899	50.3	49.8	47.6	40.0	46.9
42	Palm Bay-Melbourne-Titusville, FL	589,162	46.0	43.9	41.8	39.8	42.9
43	Rochester, NY	1,077,948	39.9	41.2	40.4	39.6	40.3
44	Durham, NC	567,428	36.8	35.6	35.1	39.2	36.7
45	Allentown-Bethlehem-Easton, PA-NJ	840,550	32.8	37.3	34.4	36.5	35.3
46	Mcallen-Edinburg-Mission, TX	860,661	43.7	39.1	39.7	36.1	39.7
47	Harrisburg-Carlisle, PA	571,903	34.3	33.5	32.5	36.0	34.1
48	Columbia, SC	825,033	25.4	26.3	27.5	26.9	26.5
49	Springfield, MA	631,652	53.5	33.6	31.7	26.8	36.4
50	Worcester, MA	942,475	44.1	31.1	27.9	26.1	32.3

APPENDIX B: SMALL MARKET JOB MARKET DIVERSIFICATION DATA (POPULATION 338,000 - 541,000)

| 2018 Q4 RANK	MARKET	POPULATION	Q1 2018	Q2 2018	Q3 2018	Q4 2018	AVERAGE QUARTERLY SCORE
1	Santa Barbara-Santa Maria-Goleta, CA	448,150	55.2	54.4	55.5	56.9	55.5
2	Vallejo-Fairfield, CA	445,458	50.3	54.1	56.0	56.7	54.3
3	Beaumont-Port Arthur, TX	412,437	54.9	56.0	56.2	56.2	55.8
4	Salem, OR	424,982	55.7	50.4	51.0	55.2	53.1
5	Naples-Marco Island, FL	372,880	51.9	54.0	54.0	55.0	53.7
6	Visalia-Porterville, CA	464,493	43.8	44.6	50.3	54.7	48.3
7	Santa Rosa-Petaluma, CA	504,217	53.1	51.3	55.7	54.2	53.6
8	Gulfport-Biloxi, MS	394,232	52.3	46.0	50.9	53.9	50.8
9	Salisbury, MD	405,853	45.5	43.0	55.7	53.6	49.5
10	York-Hanover, PA	446,078	51.4	53.9	54.8	53.5	53.4
11	Savannah, GA	387,543	52.1	51.6	52.6	53.4	52.4
12	Killeen-Temple-Fort Hood, TX	443,773	41.4	51.4	50.3	53.0	49.0
13	Anchorage, AK	400,888	51.4	50.2	50.8	52.6	51.2
14	Shreveport-Bossier City, LA	440,933	50.8	50.6	50.9	52.4	51.2
15	Port St. Lucie, FL	473,429	49.7	52.1	52.4	52.1	51.6
16	Corpus Christi, TX	454,008	49.6	53.6	53.0	51.7	52.0
17	Myrtle Beach-Conway-North Myrtle Beach, SC	464,165	50.4	46.7	47.9	51.6	49.2
18	Kalamazoo-Portage, MI	338,338	46.7	49.1	51.0	51.3	49.5
19	Lancaster, PA	542,903	50.5	52.7	51.5	51.2	51.5
20	Lansing-East Lansing, MI	477,656	47.6	48.7	51.7	50.8	49.7
21	Hickory-Lenoir-Morganton, NC	366,534	54.3	56.1	53.8	50.7	53.7
22	Mobile, AL	413,955	48.7	51.8	51.9	50.7	50.8
23	Fort Collins-Loveland, CO	343,976	51.7	49.6	50.2	50.6	50.5
24	Lafayette, LA	491,558	49.9	51.2	50.4	50.3	50.4
25	Montgomery, AL	373,903	47.3	50.1	51.7	49.8	49.7
26	Salinas, CA	437,907	52.8	50.9	48.6	49.6	50.5
27	Reno-Sparks, NV	464,593	51.7	48.9	50.4	49.3	50.1
28	Davenport-Moline-Rock Island, IA-IL	382,263	53.6	54.6	50.6	49.1	52.0
29	Eugene-Springfield, OR	374,748	54.0	51.5	50.5	48.6	51.1
30	Fort Wayne, IN	434,617	47.2	50.7	47.5	48.5	48.5
31	Pensacola-Ferry Pass-Brent, FL	487,784	42.4	47.7	46.0	48.1	46.0
32	Brownsville-Harlingen, TX	423,725	48.9	49.9	53.0	48.0	49.9
33	Fayetteville, NC	386,662	43.9	44.6	43.1	47.4	44.7
34	Asheville, NC	456,145	45.5	48.4	48.2	46.9	47.2
35	Canton-Massillon, OH	399,927	45.7	47.5	49.2	46.5	47.2
36	Reading, PA	417,854	53.7	56.5	47.4	46.2	50.9
37	Manchester-Nashua, NH	409,697	49.4	46.0	46.0	45.7	46.8
38	Huntington-Ashland, WV-KY-OH	356,474	41.8	45.3	45.5	43.9	44.1
39	Flint, MI	407,385	46.5	43.9	42.3	43.6	44.1
40	Portland-South Portland-Biddeford, ME	532,083	41.7	37.7	39.9	43.2	40.6
41	Trenton-Ewing, NJ	374,733	46.1	44.3	44.8	43.2	44.6
42	Tallahassee, FL	382,627	38.9	40.8	40.3	43.0	40.7
43	Ocala, FL	354,353	44.9	46.9	48.2	42.2	45.5
44	Springfield, MO	462,369	32.5	34.1	37.5	41.6	36.4
45	Lexington-Fayette, KY	512,650	36.7	37.4	39.3	41.3	38.7
46	Huntsville, AL	455,448	42.3	43.2	41.5	40.6	41.9
47	Ann Arbor, MI	367,627	36.6	38.4	39.6	40.2	38.7
48	Youngstown-Warren-Boardman, OH-PA	541,926	37.5	42.3	41.3	39.1	40.1
49	Peoria, IL	372,427	41.3	41.0	39.2	38.6	40.0
50	Fayetteville-Springdale-Rogers, AR-M	537,463	36.6	35.9	36.5	36.0	36.3

APPENDIX C: SCATTER PLOTS

LARGE MARKET JOB MARKET DIVERSIFICATION SCORES VS. POPULATIONS
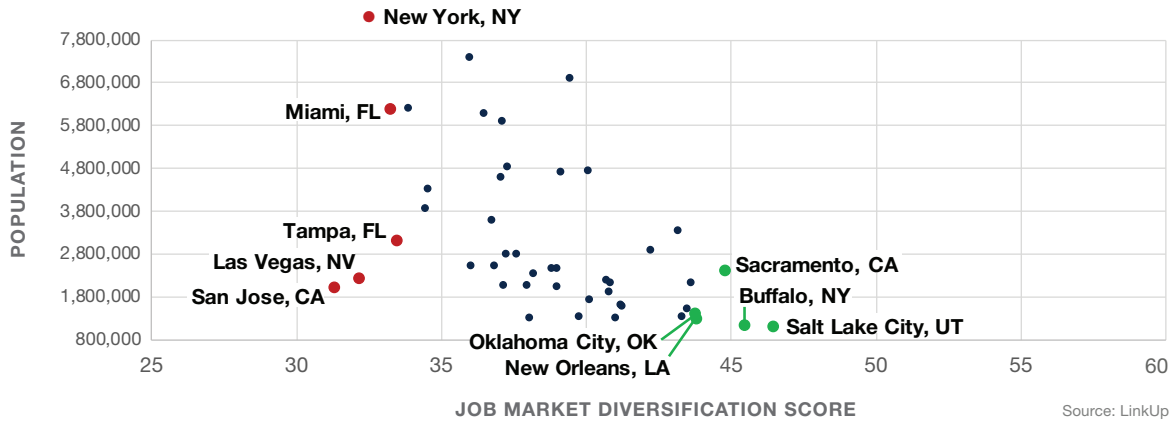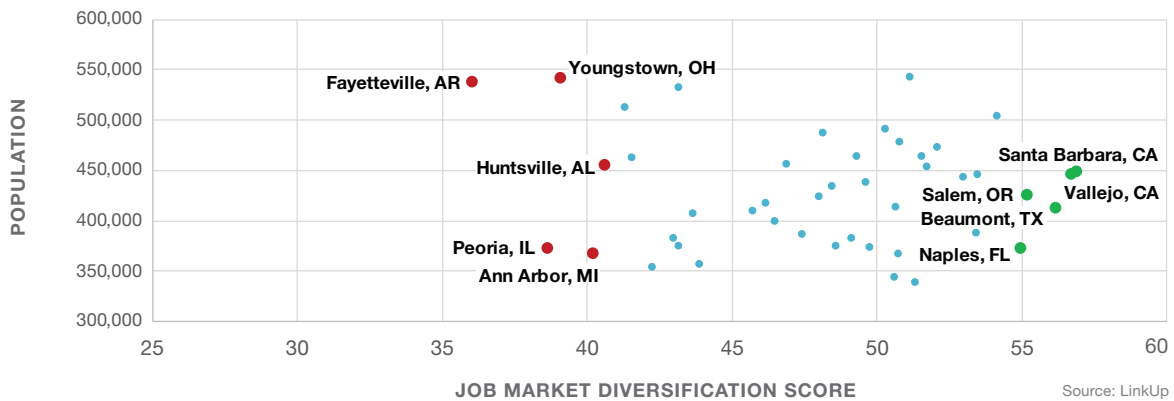

Source: LinkUp

MID MARKET JOB MARKET DIVERSIFICATION SCORES VS. POPULATIONS
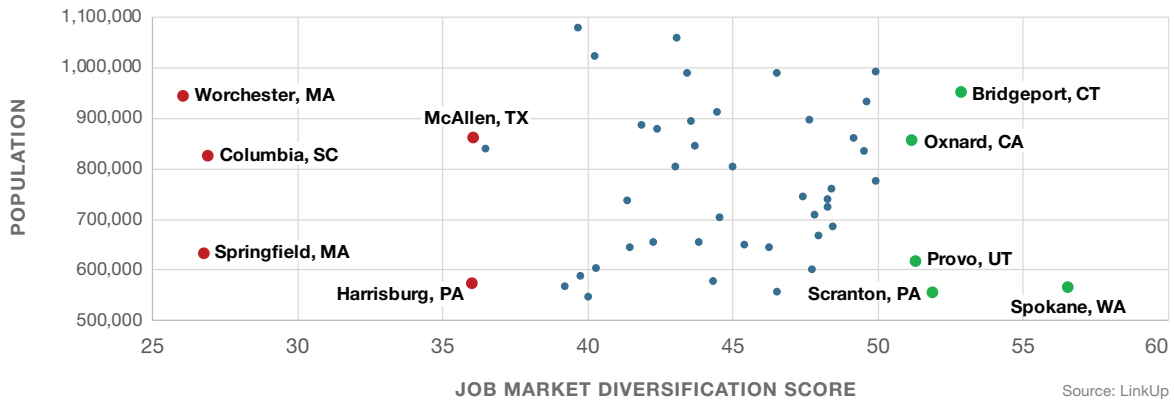
Source: LinkUp

SMALL MARKET JOB MARKET DIVERSIFICATION SCORES VS. POPULATIONS

Source: LinkUp

APPENDIX D: RESOURCES

[1] https://www.wsj.com/articles/utah-shows-how-labor-force-growth-fuels-economic-growth-11547809200

[2] https://www.wsj.com/articles/utah-shows-how-labor-force-growth-fuels-economic-growth-11547809200

[3] https://www.economicmodeling.com/2013/11/01/how-many-jobs-does-the-federal-government-explain-in-the-washington- d-c-metro/

[4] https://patch.com/virginia/arlington-va/amazons-hq2-will-bring-15-billion-nova-dc-report

[5] https://newsok.com/article/5617980/oklahoma-economy-shows-signs-of-strength-in-2018

[6] https://lasvegassun.com/news/2017/mar/20/las-vegas-in-desperate-need-of-diversifying-econom/

[7] https://www.newsobserver.com/news/business/article217438800.html

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