

Overview

LinkUp has created a new, proprietary metric that calculates the diversity of job openings in a given geographic region. The Job Market Diversification Report 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 industries with job openings (based on 3-digit NAICS codes)
- Distribution of companies with job openings (based on companies in the LinkUp Index)
- Distribution of job categories (based on LinkUp's job category classification)

Methodology

The diversification of a metropolitan statistical area (MSA) is calculated by adding the number of rows (i.e. industries, companies, or job categories) 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 Figure 1 and 2) 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 (Figure 2).

Figure 1

Job Openings in Each Quintile as % of Total Job Openings						
Quintiles	Ex 1	Ex 2	Ex 3	Ex 4	Ex 5	Ex 6
Top Quintile	20%	30%	40%	60%	80%	100%
2 nd Quintile	20	25	30	15	10	0
3 rd Quintile	20	20	15	15	6	0
4 th 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
2 nd Quintile	0	5	10	5	10	20
3 rd Quintile	0	0	5	5	14	20
4 th 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 MSA is calculated. A diversification score is calculated for each parameter and then those three scores are averaged for a composite diversification score of 50 for San Francisco.

Figure 3

Example Calculation For San Francisco						
Parameters	Categories		Industries		Companies	
	% of Job Openings in each Quintile	Variance from 20%	% of Job Openings in each Quintile	Variance from 20%	% of Job Openings in each 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					

Results

LinkUp has calculated the second quarter 2018 Job Market Diversification Report for the top 150 MSAs in the United States. The 150 MSAs have been grouped into large markets (populations > 1,100,000), mid markets (populations 542,000-1,077,000), and small markets (populations 338,000-541,000). Since this is now the second report published for 2018, we have also compared the scores from Q2 2018 to Q1 2018.

In addition to publishing the Job Market Diversification score for each MSA, LinkUp also compares the score to another economic metric for each MSA. In the Q1 2018 report, LinkUp compared market diversification scores to unemployment rates. In Q2, LinkUp compared market diversification scores to the median annual salary based on the Occupational Employment Statistics (OES) Survey released in May 2017 by the Bureau of Labor Statistics, Department of Labor.

We found an interesting relationship between the job market diversification score and the median salary in all three markets. For example, the average median salary for the five most diversified cities in large markets is \$41,592, but for the five least diversified cities in large markets it is \$37,418, a difference of \$4,200. For mid markets we found the most diversified cities average median salary to be roughly \$1,000 more, and for small markets roughly \$2,500 more. The cost of living was not taken into account, and we are not suggesting a causal relationship between the two factors, but we were interested to find an anecdotal correlation between median salary and job market diversification.

Large Markets:

For the large markets, Salt Lake City, San Francisco, Louisville, Raleigh, and Houston have the most diversified job markets while Kansas City, Riverside, Cleveland, Detroit, and Las Vegas have the least diverse job markets.

The ranking of markets is based on the variance of job openings across categories, industries, and companies. The smaller the variance across the quintiles, the higher the diversification score. By reviewing just the variance of job openings across 100 industries (i.e. 3-digit NAICS codes), we can see how minor variances can impact the overall score. In Houston, for example, the top quintile within industries accounts for 64% of job openings while in Kansas City the top quintile accounts for 75% of job openings.

The changes in the size of each quintile can have significant impact on the overall score for each MSA, as well as the MSA's rank within the large markets. Houston increased its overall score from 46.9 in Q1 to 48.2 in Q2. This increase raised Houston from #8 to #5 in the large market ranking. Kansas City, on the other hand, went from 41.4 in Q1 2018 to 39.9 in Q2 2018. While KC's overall score only dropped 1.5 points, its rank within the large markets went from #33 to #46.

Despite the lack of causal relationship between annual salary and market diversification, there are some MSAs that show a loose relationship between salary and score. San Francisco, for example, has one of the highest annual salaries at \$57,290 and ranks #2 out of 50 for most diversified job market. Las Vegas, on the other hand, has one of the lowest annual salaries at \$34,400 and ranks #50 in job market diversification.

LARGE MARKETS

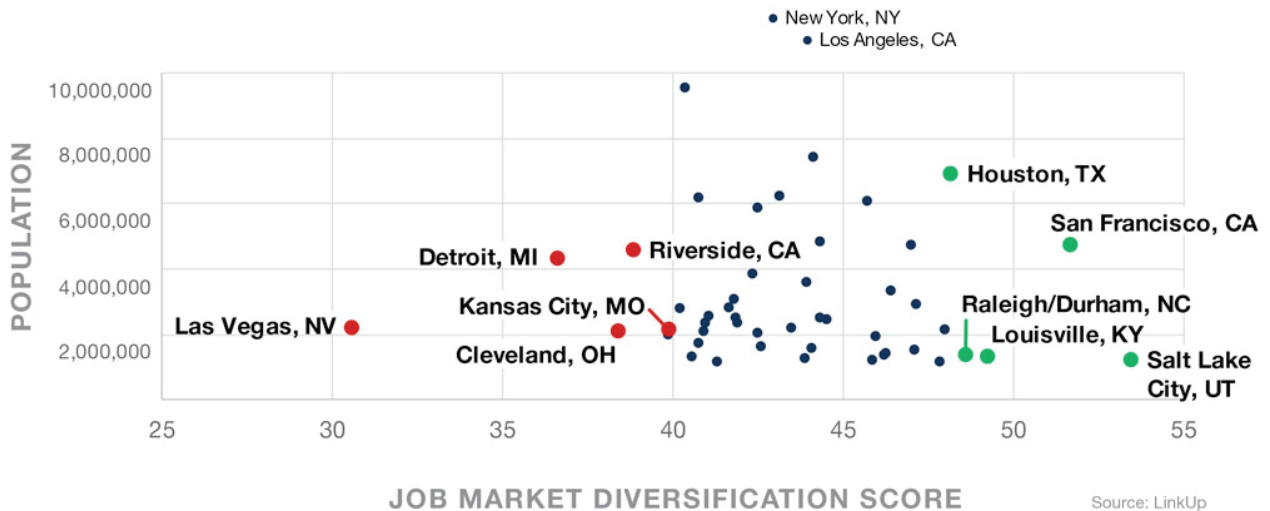
MOST DIVERSIFIED JOB MARKETS

MSA	ANNUAL MEDIAN WAGE
1 Salt Lake City, UT	\$37,840
2 San Francisco, CA	\$57,290
3 Louisville, KY	\$35,340
4 Raleigh, NC	\$38,520
5 Houston, TX	\$38,970

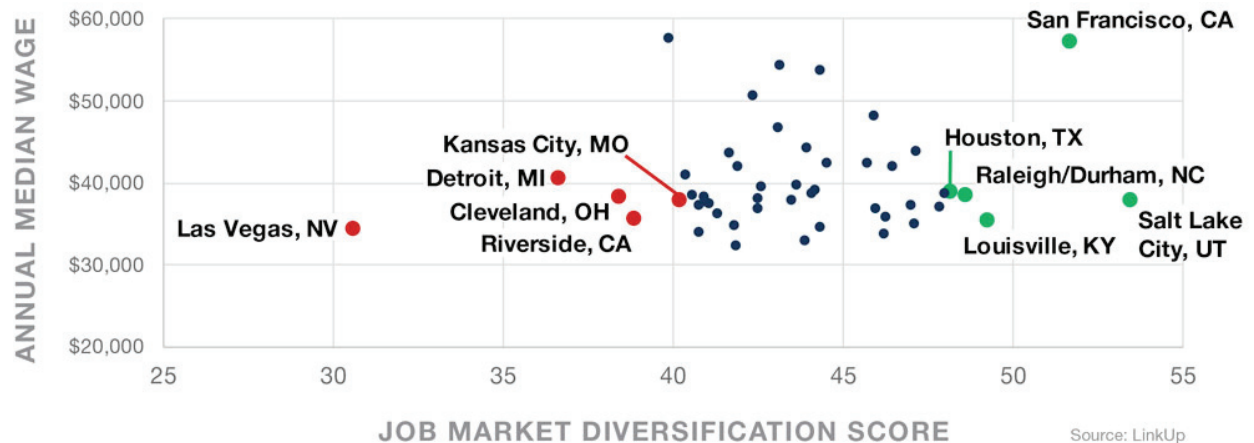
LEAST DIVERSIFIED JOB MARKETS

MSA	ANNUAL MEDIAN WAGE
46 Kansas City, MO	\$38,410
47 Riverside, CA	\$35,480
48 Cleveland, OH	\$38,330
49 Detroit, MI	\$40,470
50 Las Vegas, NV	\$34,400

JOB MARKET DIVERSIFICATION SCORE BY POPULATION



JOB MARKET DIVERSIFICATION SCORE BY ANNUAL MEDIAN WAGE



Mid Markets:

Among the mid-market MSAs, the top five MSAs are Provo, Bridgeport, Spokane, Oxnard, and Scranton. The bottom five are Winston-Salem, Springfield, Harrisburg, Worcester, and Columbia.

Among the mid markets, the number of job openings by company was a key driver in a higher versus lower score. In Spokane, Washington for example, 24 more companies had job openings in Q2 2018 vs. Q1 2018 which helped drive Spokane's score from 50.3 in Q1 to 53.3 in Q2, and its rank from #7 to #4 out of 50 mid-sized MSAs.

However, a large increase in job openings from just one employer actually hurt the job market diversification scores in the two mid-sized MSAs in Massachusetts. Taco Bell announced last fall it would be opening 300-350 new concept restaurants that will serve alcohol in several major markets such as Boston and its larger suburbs like Springfield and Worcester. [1] In both Massachusetts cities, Taco Bell added almost 5,000 more job openings between Q1 and Q2 2018. This huge spike in job openings from just one company made the top quintile account for 86% of job openings whereas in Spokane, the top quintile only accounted for 73% of job openings. Since Spokane's job openings are spread across several more companies, Spokane had a much more diverse job market in Q2 2018.

The big spike in Taco Bell jobs also drove the ranking for Springfield in particular way down. In Q1 2018, Springfield ranked #3 out of 50 among the mid-sized markets. In Q2, Springfield dropped way down to #47 out of 50. A dramatic change in job openings by one employer can severely impact how diverse the job market is in an MSA.

1. Lutz, Ashley. "Taco Bell Is Ditching the Drive-thru and Going Upscale." Business Insider, Business Insider, 22 Sept. 2017. www.businessinsider.com/taco-bell-cantina-restaurants-2017-9.

MID MARKETS

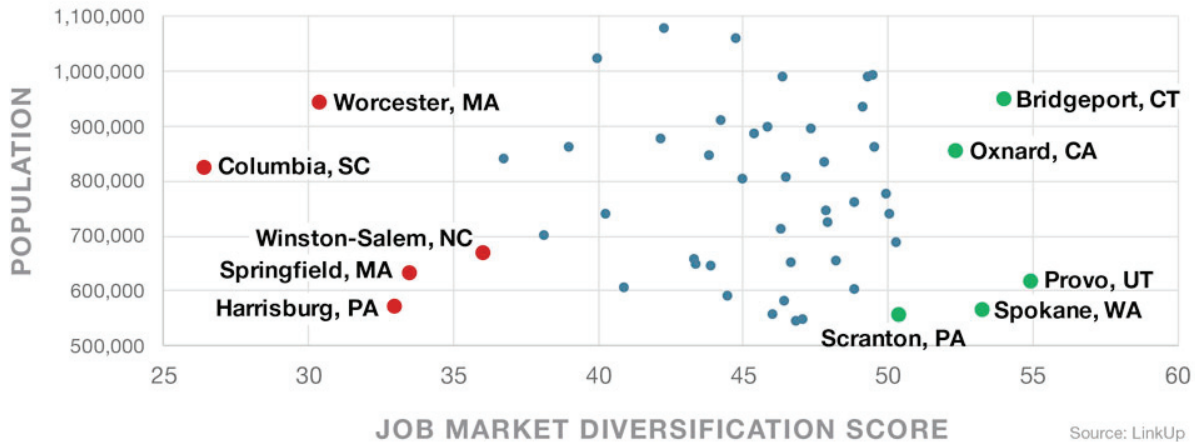
MOST DIVERSIFIED JOB MARKETS

MSA	ANNUAL MEDIAN WAGE
1 Provo, UT	\$33,430
2 Bridgeport, CT	\$49,630
3 Spokane, WA	\$37,500
4 Oxnard, CA	\$38,840
5 Scranton, PA	\$34,090

LEAST DIVERSIFIED JOB MARKETS

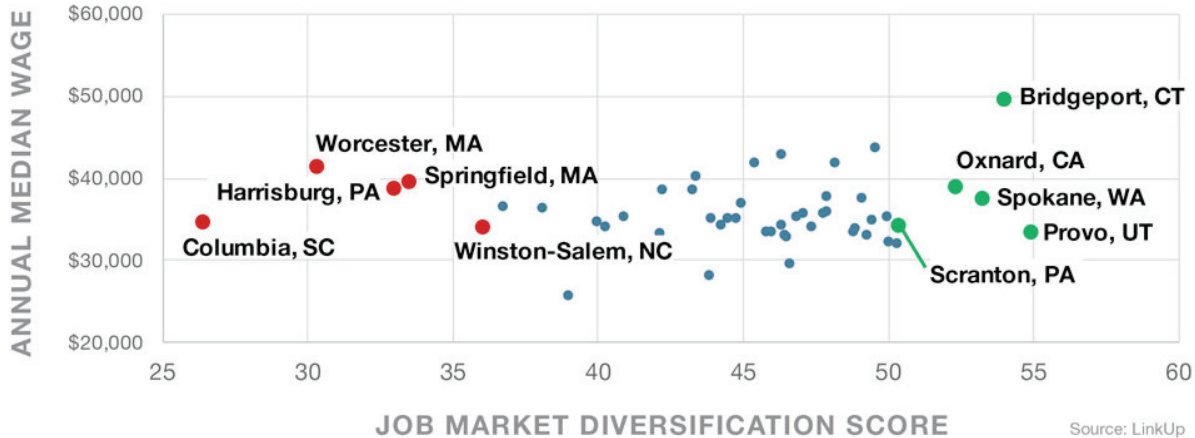
MSA	ANNUAL MEDIAN WAGE
46 Winston-Salem, NC	\$34,000
47 Springfield, MS	\$39,570
48 Harrisburg, PA	\$38,720
49 Worcester, MA	\$41,390
50 Columbia, SC	\$34,670

JOB MARKET DIVERSIFICATION SCORE BY POPULATION



Source: LinkUp

JOB MARKET DIVERSIFICATION SCORE BY ANNUAL MEDIAN WAGE



Source: LinkUp

Small Markets:

Among the small markets, Naples, Santa Barbara, Vallejo, Beaumont, and Santa Rosa were the most diversified while Ann Arbor, Portland, Fayetteville, Lexington, and Springfield were the least diversified.

In small markets, the diversification score was heavily influenced by how many employers had job openings in the local market. In Vallejo, California for example, the top three companies with the most job openings (Taco Bell, Kaiser Permanente, and Fairfield-Suisun School District) only accounted for 17% of all job openings. On the other hand, in Portland Maine, the top three employers with the most job openings (Sweetser, Maine Medical Center, and Food Lion) accounted for 39% of all job openings.

Vallejo, which had job openings spread across many companies helped drive Vallejo to jump in rank from #17 out of 50 in Q1 2018 to #3 in Q2 2018. The reverse happened to Portland which went from #40 out of 50 in Q1 to #47 out of 50 in Q2. Just a few of Portland's employers had high increases in job openings which drove Portland to be less diverse in the LinkUp Job Market Diversification Report. Sweetser, a large behavioral health organization in Maine, recently acquired Getchell Agency and added over 500 job openings between Q1 to Q2 2018. Maine Medical Center completed phase one of a \$512M renovation & expansion project. The completion of this phase generated almost 130 more job openings in Q2.

SMALL MARKETS

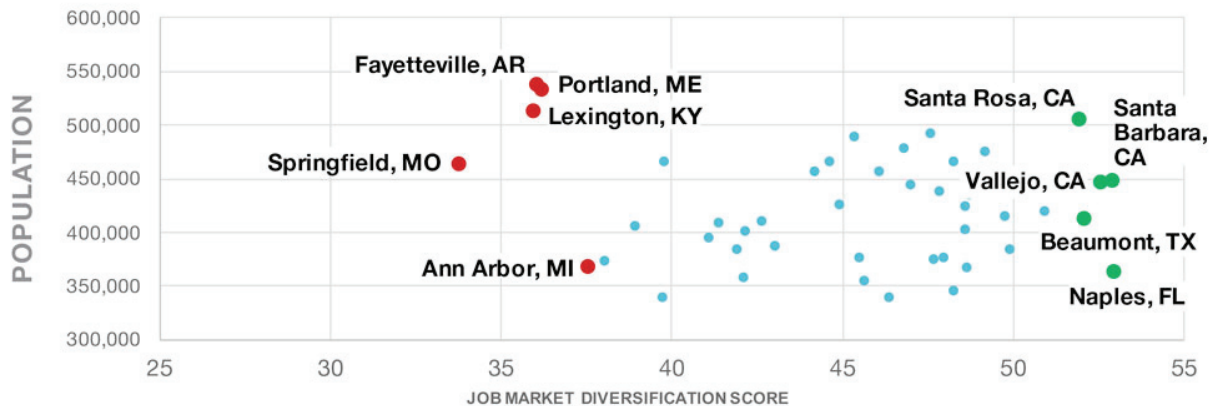
MOST DIVERSIFIED JOB MARKETS

MSA	ANNUAL MEDIAN WAGE
1 Naples, FL	\$33,790
2 Santa Barbara, CA	\$38,590
3 Vallejo, CA	\$40,290
4 Beaumont, TX	\$37,560
5 Santa Rosa, CA	\$40,630

LEAST DIVERSIFIED JOB MARKETS

MSA	ANNUAL MEDIAN WAGE
46 Ann Arbor, MI	\$39,910
47 Portland, ME	\$38,280
48 Fayetteville, AR	\$33,510
49 Lexington, KY	\$34,730
50 Springfield, MO	\$31,860

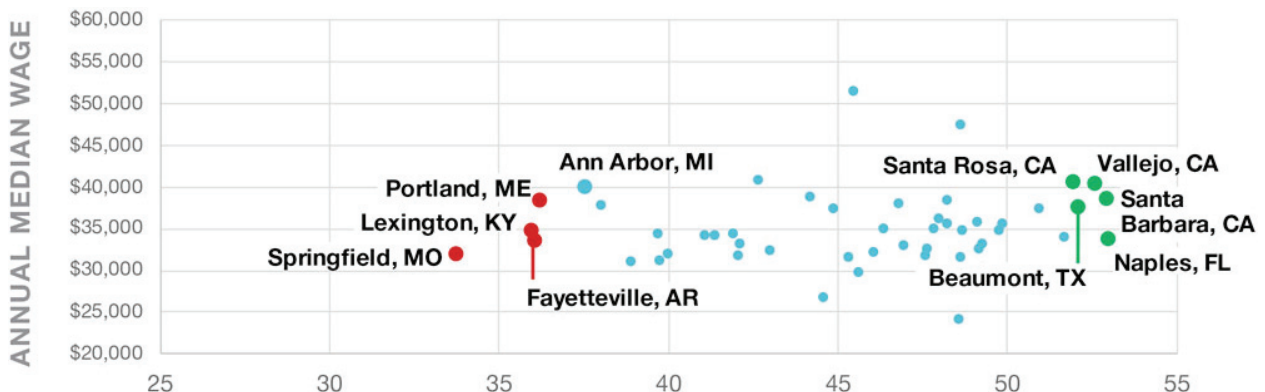
JOB MARKET DIVERSIFICATION SCORE BY POPULATION



JOB MARKET DIVERSIFICATION SCORE

Source: LinkUp

JOB MARKET DIVERSIFICATION SCORE BY ANNUAL MEDIAN WAGE



JOB MARKET DIVERSIFICATION SCORE

Source: LinkUp

About LinkUp

LinkUp is a leading job search engine empowering people with knowledge obtained from the largest, highest quality database of global job listings. Through our proprietary and sophisticated technology, we index millions of job openings every day directly from employer websites. We leverage that unique, predictive dataset to power our candidate sourcing and job market data solutions, forever progressing towards our vision of delivering perfect job market information.