

Towards Quantifying the Strength of Music Scenes Using Live Event Data



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Motivation: Implications & Contributors of a Strong Music Community

Strong Music Communities are Associated With:

- Economic growth
- Social bonding
- Better mental/physical health
- Better community reputation

Factors that Stimulate a Music Community:

- Financial affordability
- Transportation convenience
- Music education resources
- Demographics (e.g. student populations)
- Population density & growth



LocalifyMusicEvents-USA-2019 Dataset

- 308,051 music events in 2019 across 1,139 US cities
- Scraped from BandsInTown and Facebook

28 Socioeconomic Indicators from 6 Categories:

- Transportation
- Population
- Economics
- Age
- Education
- Race

Scraped from 3 sources:

- Census Reporter
- DataUSA
- Census Quickfacts

"Live Music Event Rate" (LMER)

LMER = # of music events per 100K people per year

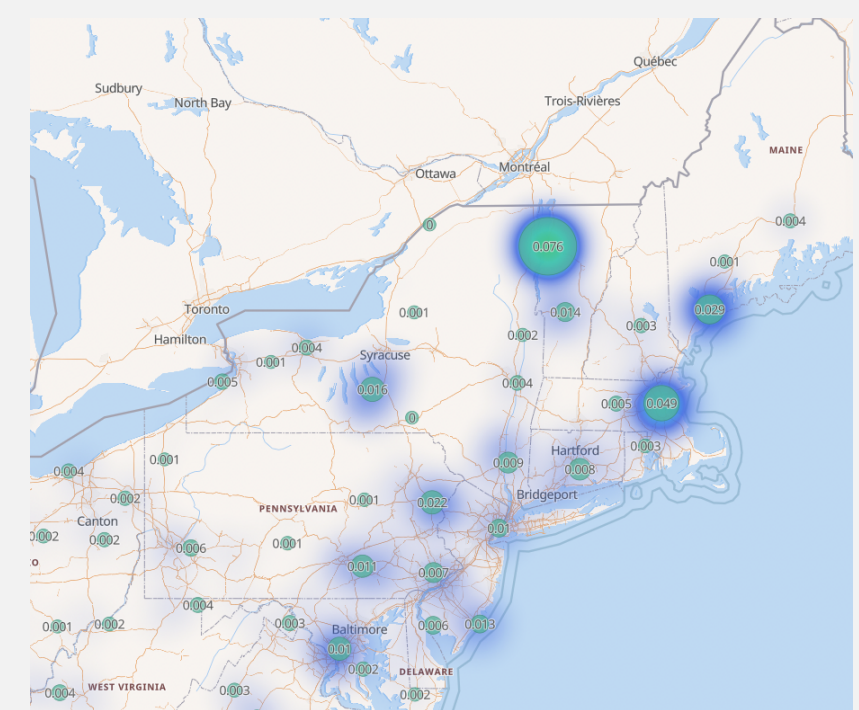
Used to measure the strength of a music scene in a city

High LMER = "Music Havens"

Low LMER = "Music Deserts"

Want to explore statistical correlations between LMER and 28 socioeconomic indicators

Size	Principal City	Pop.	LMER
Small	South Burlington, VT	19162	0.036
	Steamboat Springs, CO	12928	0.020
	Asheville, NC	92859	0.019
	Santa Cruz, CA	64605	0.019
	Key West, FL	24843	0.017
	Burlington, VT	42545	0.017
	Ithaca, NY	30569	0.016
	Fredericksburg, TX	11245	0.016
	Lahaina, HI	12776	0.014
	Rutland, VT	15398	0.013
Medium	Salt Lake City, UT	200546	0.023
	Berkeley, CA	121353	0.016
	New Orleans, LA	390144	0.015
	Richmond, VA	230436	0.015
	Cambridge, MA	118925	0.013
	Boulder, CO	105670	0.010
	Orlando, FL	287435	0.009
	Fort Collins, CO	170245	0.009
	Minneapolis, MN	429605	0.009
	Charleston, SC	143151	0.008
Large	Denver, CO	727211	0.016
	Washington, DC	705749	0.011
	Austin, TX	979263	0.011
	Atlanta, GA	506804	0.010
	Seattle, WA	753655	0.010
	Portland, OR	653467	0.009
	Las Vegas, NV	651297	0.008
	San Francisco, CA	881549	0.007
	Philadelphia, PA	1584064	0.005
	Dallas, TX	1343565	0.005



Sample heat map with LMER

Top 10 "Music Havens" for Small (pop. 10K-100K), Medium (pop. 100K-500K), Large Cities (pop. 500K+)

Experimentation:

Use statistical testing with Bonferroni correction to determine the correlations and statistical significance between LMER and each of the 28 indicators (a predictor is significant if $p\text{-value} < \alpha / 28$, for some $p\text{-value threshold } \alpha$). Set $\alpha = 0.05$.

Results:

LMER highly correlated with:

- **Transportation**
- **Education**
- **Economic indicators** (e.g. employment)
- **Demographics** (e.g. proportion of young people)
- **Population**

Indicator	r	p
Transportation		
Bicycle	0.39	5.1e-43
Public Transit+Bicycle+Walkability	0.34	1.1e-32
Public Transit	0.26	1.8e-18
Walkability	0.24	7.7e-17
Mean Travel Time	0.04	1.5e-01
Population		
Population Density	0.21	1.5e-12
10 Year Population Growth	0.18	9.8e-10
Migration Rate Since Previous Year	0.13	1.7e-05
Economics		
Employment Rate	0.26	4.7e-19
Owner-Occupied Housing Unit Rate	-0.21	3.3e-13
Median Owner Cost w/ Mortgage	0.19	2.4e-10
Median Owner Cost w/o Mortgage	0.17	2.9e-09
Median Property Value	0.17	1.8e-08
Per Capita Income	0.16	3.7e-08
Median Gross Rent	0.15	2.7e-07
Median Household Income	0.06	3.1e-02
Poverty Rate	-0.00	8.2e-01
Age		
Percent Under 18	-0.24	7.6e-16
Percent 20-29	0.17	2.0e-08
Percent 18-29	0.14	1.8e-06
Age Diversity Index	0.11	1.1e-04
Percent 10-29	0.10	4.5e-04
Median Age	-0.06	4.1e-02
Percent Under 30	0.02	4.1e-01
Education		
Bachelor Or Higher	0.27	6.6e-20
Postgrad Degree	0.24	8.1e-16
High School Or Higher	0.12	6.6e-05
Race		
Race Diversity Index	-0.07	1.9e-02

Table showing the correlation coefficient (r) and p-values (p) for all 28 socioeconomic indicators across all cities. Statistically significant indicators are in bold font.

Future Work:

- Study the "music deserts" more carefully
- Explore how various strategies can help strengthen music scenes for these "music deserts"

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Doug Turnbull, Tim Clerico, John Hunter, and Emmett Barry all contributed to the Localify.org music event scraper code. This research was supported by NSF grant IIS-1901330/1901168 and NEH grant HAA-280975-21. Finally, we would like to thank the anonymous ISMIR reviewers for their highly constructive feedback.

Github Link:

<https://github.com/JimiLab/LocalifyMusicEventData>



LOCALIFY.ORG

