creative class group

Music Clusters:

A Preliminary Analysis

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Introduction

This research note is part of a large scale project on the popular music industry and system see Florida and Jackson (2008). Using data from the Bureau of Labor Statistics (BLS), it calculates location quotients (LQs) to identify regional concentrations of employed musicans. It then employs biavariate correlations and cluster analysis to identify music clusters. The cluster analysis looks at a series of factors that may be thought to shape and influence the concentration of employed musicians: overall population, income levels, ethnic diversity, the availabilty of service economy (or "day") jobs, and presence of related artistic, cultural and entertainment occupations.

Theory and Concepts

This section outlines the theory and concepts that shape and motivate our analysis: (As part of a larger project it draws from Florida and Jackson (2008).

Geographers and economists have long noted the tendeny for certain types of economic activity to cluster Marshall (1890). Jacobs (1969) initially identified the way that cities bring together diverse groups of human talent and spur innovation. Lucas (1988) later formalized these insights specifying the role played by human capital externalities in economic development. A large number of studies have identified the tendency for innovation to occur

in cities and result preferentially from knowledge spillovers between sectors Glaeser et al. (1992); Saxenian (1994); Florida (2002).

Caves (2002) argues that creative industries are defined by intangible products which are idiosyncratic and for which demand is impossible to determine in advance. Such industries benefit from a geographically concentrated economic structure that includes cultural producers, agents, gate-keepers and other market actors. Scott (2000) notes that dense production agglomerations are a key characteristic of originality and innovation in culture industries. Markusen (2004) outlines the specialization of creative activity across locations. Currid (2007) shows how venues, clubs, recording studios and performance spaces act as conduits for economic and social relationships and networks. Florida and Jackson (2008) find that the music industry is potentially shaped by two forces. On the one hand, they note the concentration of music industry employment and establishments in major centers like New York, Los Angeles and Nashville. On the other, they find some dispersal of musicans in smaller locations including rural and ex-urban areas.

There is a growing, mainly qualitative, literature on music scenes. Historians have noted the tendency of musicans and artists to cluster together Mark (1998). The term "music scene" was orginally used to describe the musical genres associated with mid-20th century crossroads music locations which brought migrating, largely rural, folk and blues based musical talent to

major cities and in contact with larger audiences, radio stations, commerical venues, recording studios, agents, producers, and music entrepreneurs. Examples of this include: the New Orleans and jazz, Nashville country, Memphis in blues and soul, rockabilly, and Detroit in Motown and roots rock.

Bennett and Peterson (2004) define music scenes as "the context in which clusters of producers, musicians, and fans collectively share their common musical tastes and collectively distinguish themselves from others." Clark, Rothfield and Silver (2008) add that scenes are "modes of organizing cultural production and consumption" that "foster certain shared values and tastes, certain ways of relating to one another and legitimating what one is doing or not doing." While examining music scenes is useful and important (and a key element of our broader project), this research note focuses on the factors associated with observed concentrations of employed muscians. Other, more qualitative research will probe the nature of scenes and the actors and networks that comprise them.

There are several factors that may be seen to effect the concentration of employed musicans into regional clusters. The first and most obvious is population. Musicans may be seen to locate around major centers of population. Musicans are also likely to concentrate and cluster where incomes and hence demand for musical services are higher. Others suggest that musicans will locate around concentrations of highly educated populations which desire cultural amenities such as live music performance. As noted

above, music scenes have been found to emerge in multi-ethnic, crossoads locations, so it might be expected that musicans would cluster in areas of ethnic and cultural diversity. Others argue that in the past couple of decades music scenes have grown up in around college towns where music talent is located, students have free time to form and play in musical acts, and there is considerable demand for live music performance. Athens, Georgia, home of REM and Charlottesville, Virginia, home of the Dave Matthews Band are two cases in point. A broad artistic, cultural and entertainment economy can be seen to provide additional demand for muscians who may be employed by or perform in other cultural enterprise from theatre productions to films, radio and TV broadcasts and commerical jingles. Some argue that musicians and musical activity is spurred by the availability of lower-skill, lower intensity "day" jobs in the service sector of the economy. Our research looks at the effect of these factors and several others on the composition of distinctive clusters of musicians.

Variables, Data, and Methods

We employ the following variables in this analysis:

Musicians: Our variable for musicians is a location quotient for employed musicians and singers, based on data from the BLS for 2000.

Income: Our measure here is income per capita. It includes proceeds from wages and salaries plus self-employment income, interest, dividends, rents, royalties, estates, trusts, social security or railroad retirement income, Supplemental Security Income (SSI), public assistance, welfare payments, retirement, survivor, or disability pensions, and all other income. It is derived from the 2000 US Census.

Population: This is a measure of total population by metro region and is from the 2000 Census.

Human Capital: This variable is based on educational attainment, measured as the percentage of the regional labor force with a bachelor's degree and above. It is from the 2000 US Census.

Arts, Culture and Entertainment Index: We calculate a location quotient for employment in arts, culture and entertainment industries. We do so without musicians of course. The data are from the BLS for the year 2000.

Foreign-Born Population/Melting Pot Index: We calculate foreign-born share of population by metro area. The data are from the 2000 Census.

University/College Town: This variable is based on the share of population enrolled in college. The data are from the 2000 Census.

Service Economy Employment: Some argue that musicans depend on good "day" jobs to help support themselves, suggesting that the music economy requires a robust service economy for these jobs. Our variable is service economy share of employment from the 2000 BLS.

Location Quotients and Rankings

To get started, Table 1 provides a simple ranking of regions with LQs of 1.55 and above. A larger list of regions with LQs or 1 or more is provided in the appendix. Honolulu leads with an LQ of 4.8. Two regions have LQs of 3 to 4 – New York (3.85) and Nashville (3.29). An additional four regions have LQs of 2 to 3 – San Francisco, Reno, Knoxville and Chicago, while five more have

LQs between 1.5 and 2 – Las Vegas, Fresno, Lynchburg, Newark and Los Angeles.

Table 1: Location Quotients for Leading Regions

Region	LQ
Honolulu	4.80
New York	3.85
Nashville	3.29
San Francisco	2.81
Reno	2.53
Knoxville	2.30
Chicago	2.05
Las Vegas	1.97
Fresno	1.91
Lynchburg	1.88
Newark	1.69
Los Angeles	1.58

To supplement this, Figure 1 provides a box-plot of the distribution of all regions by LQ. As we can see, the distribution of muscians is skewed. Of all 331 metros reporting employed musicians, just 32 or 9.67 percent have an LQ of 1 or above. Figure 2 illustrates the regional distribution of musicians and singers in relation to the relative concentration of those. The dominance of New York is striking, followed by Chicago and Los Angeles. Those three regions together account for more than 40 percent of all employed musicians in our US sample.

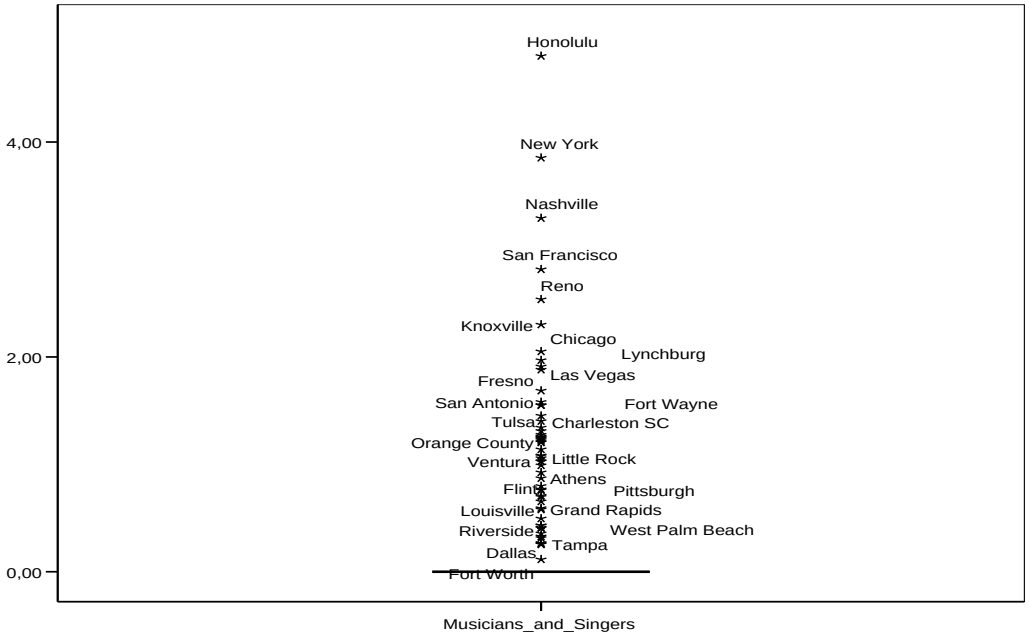

Figure 1: Box Plot of LQs for Employed Musicians and Singers

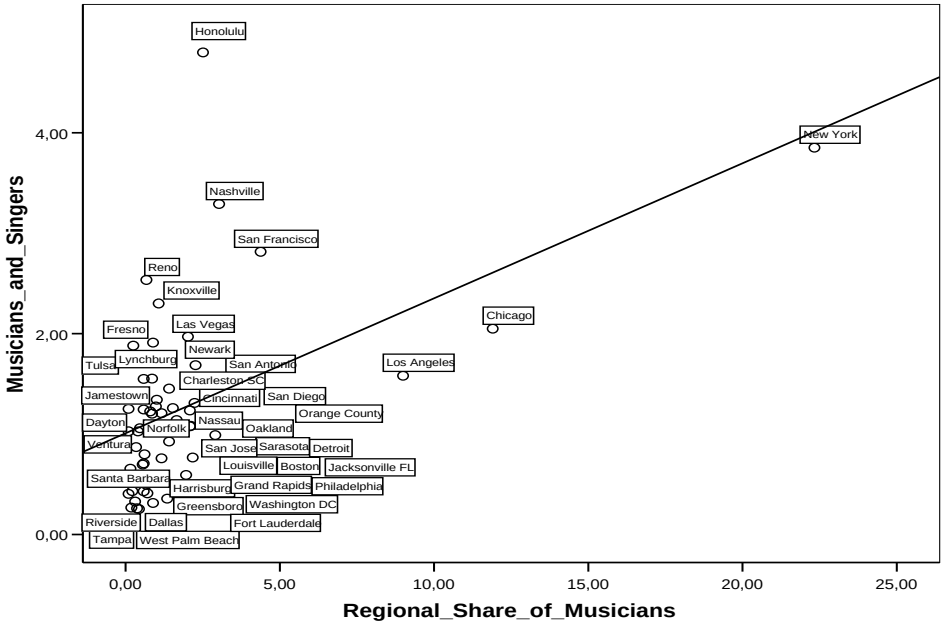

Figure 2: LQ Musicians and Singers vs the Regional Share of all Musicians and Singers

Correlation Analysis

So far, so good. But what are the factors associated with the leading regional concentrations. To get at this, Table 2 summarize the findings of bi-variate correlations between musicans and the other key variables in our analysis.

Table 1: Correlation Matrix

	Musicians	Income	Pop	Arts & Enter	Melting Pot	Human Capital	Service Jobs	College Town
Musicians	1							
Income	.214(**)	1						
Population	.470(**)	.317(**)	1					
Arts& Entertainment	.266(**)	.457(**)	.365**)	1				
Melting Pot	.315(**)	.288(**)	.452(**)	.209(**)	1			
Human Capital	.133(*)	.699(**)	.288(**)	.599(**)	.220(**)	1		
Service Jobs	.093	.182	.067	.447(**)	- .121(*)	.442(**)	1	
College Town	- .028	- .032	- .072	.314(**)	.019	.572(*)	.307(**)	1

** Significant at the 0.01 level (2-tailed).
* Significant at the 0.05 level (2-tailed).

The highest correlation is for population, a closely related factor (0.470*). It is followed by the melting pot measure (0.315*), arts and entertainment broadly (0.266*), and then income (0.214*). No other factor has a correlation of greater than .2. The correlation for human capital is 0.133. Service economy employment has no significant correlation to employed musicians. College town is negative and insignificant.

Cluster Analysis

We next used cluster analysis to identify how these factors effect the regional concentrations of muscians. A cluster analysis is a method to identify homogenous subgroups in cases of a population. It seeks to identify a set of subgroups that minimize the within-group variation and at the same time maximize the between-group variation. We have used a hierarchical clustering which allows us to identify the number of clusters that best suits the data.

As noted above, the distribution of employed musicians is highly skewed, with only 32 regions reporting enough of these occupations to score an LQ above 1. The cluster analysis generated 3 clusters based on music LQ, income, population, ethnic diversity, and arts and entertainment intensity. Table 3 summarizes the overall results. Table 4 lists the regions in each of the three main clusters.

Table 3: Key Cluster Analysis Results

	Cluster		
	1	2	3
Music LQ	2.49	1.48	1.77
Income	$23,260	$25,660	$20,610
Pop. (millioms)	9.03	2.12	.717
Arts&Enter (LQ)	1.72	1.03	.84
Ethnic Diversity (%)	29%	17%	8%

Table 4: Music Clusters

Cluster 1	Cluster 2	Cluster 3
Chicago	Cincinnati	Athens
Los Angeles	Las Vegas	Buffalo
New York	Nassau	Charleston
	Newark	Dayton
	Norfolk	Fort Wayne
	Oakland	Fresno
	Orange County	Honolulu
	San Antonio	Jamestown
	San Diego	Knoxville
	San Francisco	Little Rock
	Seattle	Lynchburg
		Nashville
		Providence
		Reno
		Richmond
		Tucson
		Tulsa
		Ventura
N=3	N=11	N=18

Cluster 1 is composed of the largest regions with high concentrations of arts and entertainment employment, ethnic diversity measured as percent foreign-born, and relatively high average income. It is composed of just three regions: New York, LA, and Chicago which are the three most populous in the United States. It has the highest LQ for muscians, 2.49. Both the arts and entertainment and ethnic diversity measures are also highest of the three

clusters, which is likely a function of overall population size as well. Income, however, is lower than for Cluster 2 ($23,260 vs. $25,660).

Cluster 2 is composed of 11 mainly large regions (average population of 2.1 million). Many of them are located in California and the west. Regions in this cluster have the highest average incomes in the sample, $25,660, another indication of the role that demand plays in effecting concentrations of emloyed muscians. The arts and entertianment measure is on par with the national average. However, the music LQ is the lowest of the three clusters. This cluster includes regions like San Francisco with historically well developed music scenes and high levels of human capital. It also includes Las Vegas as a center of tourism which supports a considerable number of professional musicans.

Cluster 3 is made up of smaller regions (average population, 717,000) with the lowest average income in the sample, $20,610. It also has the lowest scores on arts and entertainment and ethnic diversity measures. But its music LQ of 1.77 is second of the three. It includes a mixed bag of regions mainly in the south and Midwest. Nashville is a major center for professional musicians and for the music industry broadly. Athens, Georgia, is home to the University of Georgia and the band, REM. Honolulu is a major center for tourism and has the highest LQ for music in the entire sample. It suggests that while population size and income are important elements in the concentration and clustering of employed muscians, significant clusters can and do emerge

in less populous places like Little Rock, Lynchburg, Charleston, Jamestown, Fort Wayne and Dayton.

The cluster analysis suggests that music clusters divide mainly by population size but also to some degree on the basis of income, arts and entertainment and ethnic diversity. That said, there is some clustering in mid-size and smaller regions, some with lower incomes as well. Furthermore, it suggests that music clusters do not segment by geographic region. Nor do they appear to segment neatly by function in the music industry. Seattle and Athens, for example, both centers of significant indie music scenes, line up in separate clusters. Similarly, Las Vegas and Honolulu – both major tourist destinations – are in different clusters. Nashville, which has emerged as a major center for musical production and commercialization, does not line up in the same cluster with established centers of musical production, New York and LA.

Conclusions

This short research note has examined the regional distribution and clustering of musicans. Using data on employed musicians, it calculated location quotients (LQs) and conducted basic bivariate and cluster analysis of music clusters, exploring the effects of factors such as population, income, ethnic diversity, the availabilty of service economy (or "day") jobs, and presence of

related artistic, cultural and entertainment occupations on music employment.

First and foremost, we find that the distribution of muscians is significantly skewed and concentrated. Just 32 regions have LQs greater than 1; 13 have LQs greater than 1.5 and 7 have LQs greater than 2.

Furthermore, the findings from the correlation and cluster analyses that population size plays a significant role in the clustering and concentration of employed musicans, certainly more so than income. The findings also seem to suggest that ethnic diversity and the concentration of overall arts and entertainment activity appear to exert some influence on the distribution and clustering of muscians. Factors such as human capital, service jobs or college town appear to have little or no effect on the clustering of musicians

We remind readers that these findings are provisional and preliminary. As part of an ongoing project, they represent a suggestive first pass at the factors that may effect the clustering of employed muscians. More research is planned to further investigate the concentration and clustering of musicians and of the music industry as well as the nature of music scenes. Our future research will expand our database of musicans beyond employed musicians by using Census PUMS data to identify patterns for self-employed muscians and those for whom music is listed as a secondary occupation. We believe that adding these categories of musicians may reveal additional clusters and

enable us to better understand the broader factors that effect the clustering of musicians and the formation and evolution of music scenes. We will also use establishment level data to track the location of music industry firms and business establishments. We plan to develop formal models based on the variables used here and additional ones to shed more light on the factors that effect clustering and concentration in the music industry. These include tests of lagged variables to probe path dependency in the location of musicans and music firms. And we plan qualitative research into the actions, behaviors, social relationships, networks and geographic factors that shape and motivate music scenes.

Ultimately it is our hope over the course of this project that we will not only uncover patterns and trends in the music industry, but that in so doing we will learn more about the social, economic and geographic forces that act on the idea-driven, creative industries more generally.

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Appendix 1: Musicians and Singers LQs

MSA	Employed Musicians and Singers LQ
Honolulu	4.80
New York	3.85
Nashville	3.29
San Francisco	2.81
Reno	2.53
Knoxville	2.30
Chicago	2.05
Las Vegas	1.97
Fresno	1.91
Lynchburg	1.88
Newark	1.69
Los Angeles	1.58
Tulsa	1.55
Fort Wayne	1.55
San Antonio	1.45
Charleston	1.40
Buffalo	1.34
San Diego	1.31
Richmond	1.27
Cincinnati	1.26
Jamestown	1.25
Tucson	1.24
Nassau	1,24
Dayton	1.23
Norfolk	1.21
Providence	1.20
Oakland	1.14
Seattle	1.08
Orange County	1.08
Little Rock	1.06
Athens	1.03
Ventura	1.03
Detroit	.99

Source: BLS, 2000.