ARE CENTRAL CITIES MORE CREATIVE? THE INTRAMETROPOLITAN GEOGRAPHY OF CREATIVE INDUSTRIES

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ABSTRACT: *This paper examines the location and growth of creative industries within metropolitan areas. In recent years, the creative industries have been increasingly sought after as potential engines of metropolitan economic growth. Although some research has been done on the location decisions by such firms and workers, it has primarily focused on interregional and intermetropolitan disparities. We use establishment-level data to investigate intrametropolitan (central city versus suburban) location and growth for creative industry establishments in 40 of the top 101 metropolitan statistical areas (MSAs). We compared the number of employees and total annual payroll in each location, and categorize them by region, population size, and creative employment growth. Findings suggest that although creative industries are more centralized, they are decentralizing faster than other industries in general, but this rate, and even the direction, varies widely across MSAs.*

Much attention in recent economic development scholarship and practice has been placed on attracting creative workers and creative industries as an urban economic development tool (Donegan, Drucker, Goldstein, Lowe, & Malizia, 2008; Peck, 2005; Rausch & Negrey, 2006; Reese, Faist, & Sands, 2010; Reese & Sands, 2008; Sands & Reese, 2008). In the introduction to their symposium on the creative class theory, Reese and Sands (2008) suggested that the empirical work on the subject can be classified into three questions. First, is the theory valid, i.e., does growth in the creative class lead to economic growth (Donegan et al., 2008; Hoyman & Faricy, 2009; Rausch & Negrey, 2006; Rushton, 2006; Sands & Reese, 2008)? Second, what is the nature and size of the creative class (Markusen, Wassall, DeNatale, & Cohen, 2008; Reese et al., 2010)? And third, what policies should be pursued in implementing this strategy? Critics such as Jamie Peck have argued that creative class approaches constitute a "creativity cargo cult" that plays on the competitive insecurities of local leaders, and others have suggested that adopting such strategies is both risky and premature, and have attempted to show theoretically and empirically that the reasoning behind them is flawed (Donegan et al., 2008; Hoyman & Faricy, 2009;

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Reese & Sands, 2008; Sands & Reese, 2008). One such concern is the resulting "creativity gap," or income inequality, along gender, place, and skill level (Negrey & Rausch, 2009).

Despite the controversies in the scholarly literature, economic development practitioners at state and local level have been quick to embrace these approaches since the 1990s. Mayors in Providence, RI and Austin, TX, among others, have touted creative class strategies as the key to economic prosperity for their cities, and organizations have sprung up around the country to promote localities as creativity magnets (City of Providence, 2009; Peck, 2005; Wynn, 2011). Some examples of strategies used at the municipal level include a project to cultivate cultural spaces in the City of Philadelphia (Stern & Seifert, 2007, 2010), and "Creative New York," a project of the Center for an Urban Future (Keegan, Kleiman, Seigel, & Kane, 2005; Kleiman et al., 2001), which among other things highlighted work by the City of New York to address the lack of affordable artist workspace and housing. Smaller cities have undertaken such approaches as well. Providence, RI, an early adopter of the creative class strategy, laid out a detailed plan for nurturing creativity with six primary goals, and multiple strategies including the creation of a city department to promote and develop arts organizations, and tax-increment-financing to attract creative firms to the city, among many others (City of Providence, 2009).

Although central city leaders have championed and implemented strategies to attract creative industries and creative workers, we know very little about the intrametropolitan spatial distribution of creative industries and their economic impact in central cities. Virtually all of the work done on the location of creative workers and jobs has used the state or metropolitan area as the geographic unit of analysis, with no distinction between central city and suburban areas. It may be argued that this core-periphery dichotomy is not very important, because economic decisions on firm location may in fact be made on the basis of the assets of the metropolitan area, and the economic benefits of these decisions are likely to be evaluated on that level as well. This metropolitan focus might be appropriate, except for the problem of jurisdictional fragmentation. Not only does this fragmentation create fiscal challenges regarding the distribution of costs and benefits of economic development policies (Storper, 2010), but it may actually impact the level of employment decentralization (Glaeser, Kahn, & Chu, 2001; Glaeser & Kahn, 2001). Thus, we ask the question: are central cities actually more creative than their suburban counterparts by hosting a higher market share of creative industries, and experiencing higher growth in these industries as well?

Creative industries have been shown to play an important role in economic growth, though its definition is subject to discussion. Markusen et al. (2008) used industrial and occupational categories, as did Reese et al. (2010). Although both included *creative* industries such as artists, musicians, and writers, Reese and colleagues also included education and high technology industries. We focus here on three key sectors in particular: information (including publishing and information technology); arts, entertainment, and recreation; and professional, scientific, and technical services. Each has demonstrated important contributions to economic growth over the last decade, and this trend is likely to continue. According to the latest report on the high-tech economy in North America by the Milken Institute, by 2003 these industries had begun a rapid recovery, suggesting that they will likely lead the current recovery as well (DeVol, Klowden, Bedroussian, & Yeo, 2009). Similarly, arts and cultural industries have shown major contributions to growth. The 2007 national study by Americans for the Arts showed that the nonprofit arts and culture industry generates annual economic activity of $166.2 billion, up 24% since their 2002 study; full time employment increased over 17% to 5.7 million (Americans for the Arts, 2007a). This activity also produced a net fiscal gain to federal, state, and local government of about $26 billion (Americans for the Arts, 2007b).

Much as Porter (1997) argued for the competitive advantage of the inner city in general, Hutton (2004) argues that this advantage is especially present for "New Economy" industries dependent

on "the innovative milieu of the inner city" (p. 92). Do creative industries cluster in central cities, or are their location decisions driven by the same forces that have led to the employment decentralization witnessed over the past 50 years? Are these industries leading a "back-to-the-city" movement, or simply following larger trends? In what follows, we first review the relevant literature on employment decentralization and the relative locational decisions of creative industries at various geographic scales, thus deriving hypotheses on their intrametropolitan distribution and growth. We then describe the data and methods used to examine the growth and location of creative industries in a sample of 40 metropolitan areas in the United States during the period between 1998 and 2002. Next we present a series of findings on the changing intrametropolitan distribution and growth of the employment and annual earnings of creative industries and how it varies with region and city size. Finally, we conclude with a discussion of the implications our findings might have for economic development planning in cities and metropolitan areas, and some suggestions for future research.

REVIEW OF LITERATURE

This study bridges two streams of literature in the field: that on intrametropolitan employment location—or more explicitly, employment decentralization—and that which looks specifically at the location of creative industries within metropolitan areas. By synthesizing these two frameworks, we hope to make an important and unique contribution to our understanding of the locational patterns of establishments in creative industries.

Employment Decentralization

Suburbanization, the process of urban decentralization that became a major phenomenon in the postwar era in the United States, has been studied extensively. The two main theories in the literature about the causes of suburbanization are the natural evolution theory and the "flight-from-blight" theory (Mieszkowski & Mills, 1993). The natural evolution theory suggests that suburbanization is a natural result of initial centralization and the filtering that comes as housing stock and other infrastructure age and wealth increases, leading to a pull to areas with more land and newer amenities. Flight-from-blight, as the name suggests, describes push factors created by the social problems in central cities, most notably crime, concentrated poverty, and declining public schools. Public policy contributed to suburbanization in a number of ways, but most notably through a combination of transportation policies favoring private vehicles, tax incentives oriented toward new construction, and local land use controls that reinforced class and racial segregation in suburban communities (Dreier, Mollenkopf, & Swanstrom, 2004).

Decentralization of employment in American metropolises accelerated in the second half of the 20th century and recent statistics show that this trend is not slowing: a quarter of central cities experienced job losses and more than three quarters lost their private sector employment share to suburbs between 1993 and 1996 (Brennan & Hill, 1999). In 1996 a third of people worked more than 10 miles from the city center (Glaeser et al., 2001). Recent statistics show that most employment (72%) is located more than 5 miles from central business districts (CBDs) (Raphael & Stoll, 2010).

Although the causes of employment decentralization are still not completely clear, studies do suggest that population size of the metropolitan area (Kneebone, 2009), residential location of workers, region, industrial specialization, and level of education are all related to employment concentration (Glaeser et al., 2001; Glaeser & Kahn, 2001). According to Glaeser and Kahn (2001), by many measures the Midwest was the most decentralized, and the South was somewhat

more centralized than the Midwest. Within this general pattern, cities specializing in service industries are more centralized, and those with more manufacturing spread out to the suburban areas. Relatively insensitive to knowledge spillover and other proximity advantages of central cities, manufacturing firms are attracted to the suburbs for cheaper land rents, convenient transportation, and lower congestion. In addition, and possibly most relevant to this study, Glaeser and Kahn (2001) found that idea-intensive industries, and those employing a highly educated workforce, tend to locate in central cities.

Creative Industries in the Metropolitan Areas

Before discussing the issue of location for creative industries, it is important to consider the parameters that define them. These industries differ from other industries in that they tend to focus on artistic objectives over (or at least equal to) monetary values, tend to be smaller enterprises, and tend to be organized around projects using temporary workers (Bagwell, 2008). Many have argued that software development, part of the information industry, should not be included among creative or cultural industries (Garnham, 2005; Markusen et al., 2008). However, much software development is increasingly creative in the traditional sense, as interface design, graphic design, and animation become larger components of the industry. Hesmondhalgh and Pratt (2005) make the case for at least some new media industries being included in their definition, noting the importance of the aesthetic qualities of their products, as well as "the unclear and malleable nature of the skills required, and the project-based nature of the work" (p. 9). These industries tend to be more centralized than average. Kneebone, who revisited Glaeser and Kahn's work on job sprawl, showed higher rates of centralization for creative industries (Kneebone, 2009). She found that information; professional, scientific, and technical services; and health care and social assistance jobs locate in central cities, and educational services are distributed equally throughout the metropolitan area, although other industries are more likely to locate in suburbs. This is likely the result of the need for close proximity to better facilitate information flows necessary to these industries.

The importance of urban place has been considered for some time, but we still know little about the actual industrial location distribution within the metropolis. Allen Scott and Richard Florida have both suggested the importance of cities to economic activity in the information economy. Scott (2006, 2008) focuses on labor specialization and cultural production. Labor specialization, according to Scott, in an increasingly global economy, requires agglomeration (or spatial concentration) to achieve the flexible specialization required to compete in the new economy (2006, p. 3). In addition, he argues that ideally there should be a balance between these production systems and urban cultural assets (2006, p. 10). The combination of the two tends to advantage larger cities, but there are notable exceptions where specialized industries exist (2006, p. 9). Labor flexibility is also a theme of Neff, who studied the importance of networks in the project-based and short-term relationships of new media workers in New York City (Neff, 2005).

Florida (2002, 2003) emphasizes "place" as an organizing unit, a preexisting condition attracting or repelling a creative workforce. Inspired by Jane Jacobs and others, Florida suggests that the right combination of amenities will make cities attractive to creative workers, and hence to the industries that employ them. And because the amenities desired—"abundant high-quality experiences, an openness to diversity of all kinds, and above all else, the opportunity to validate their identities as creative people" (Florida, 2003, p. 9)—tend to exist in urban centers rather than the periphery of the metropolis, central cities would be expected to capitalize on this advantage.

Pratt (2000) showed the importance of social networks to the location of creative industries. Using a detailed analysis of the new media industry in New York's Silicon Alley, he argues that despite the fact that traditional reasons for agglomeration—e.g., the minimization of transaction costs—are not applicable, spatial proximity was very important to this industry because of

the desire for "face-to-face communication of a formal and informal, planned, chance, and serendipitous nature" (p. 434). It is this very type of communication that others have identified as well. Neff (2005), Currid (2007), and Currid and Williams (2010a) demonstrated that these social interactions went beyond the workplace and into the streets and bars, suggesting the importance of knowledge spillovers and residential proximity to work. Currid pointed to four specific reasons that socializing was important to creative industries: the opportunity for cross-subgroup interactions, networking for job opportunities, access to cultural gatekeepers (such as critics and industry leaders), and creating support networks (Currid, 2007). In addition, spatial proximity for cultural industries is especially important because the value of production is more taste-driven than performance-driven, and due to a preference for consuming, forming tastes for, and sharing cultural goods collectively (Currid & Williams, 2010a). Markusen looked at arts occupations, and found that artists, especially in the performing arts, tend to favor central city locations (Markusen, 2006).

Hutton summarizes the theories for the inner-city preference of creative industries, pointing to several factors that advantage the urban core. These include agglomeration effects, a skilled workforce, a unique urban form, and a concentration of institutions and amenities favored by their workforce, all suggesting what should be a competitive edge for central cities (Hutton, 2009).

Others have looked at how these agglomeration effects work in creative industries. Industrial agglomeration is important, because it is directly linked to high density, and hence urban concentration. Currid and Williams (2010b) used zip code level data and GIS mapping to look at geographic clusters of cultural industries. They found that the cultural industries they looked at tended to concentrate in fairly dense areas, such as downtown Manhattan, Beverly Hills, and Santa Monica. They posit two possible reasons for this concentration: the desire for an immediate consumer base, and hence a concentration of demand; and the need for cultural institutional infrastructure within which workers could produce their art. Florida, Mellander, and Stolarick (2009) identified similar clusters of complementary creative industries, though they looked only at the intermetropolitan level for 297 U.S. metropolitan statistical areas (MSAs). One study looking at intrametropolitan location of artists, a specific group of creative workers, was done by Rushton (2006, 2009), who showed that concentrations of artists in the city core were associated positively and significantly with both human capital and per capita income growth.

Despite these studies, systematic examination of the intrametropolitan location of creative industries and their economic impact is lacking. Answering the question of intrametropolitan distribution for creative industries will not only deepen our understanding of the employment growth and economic development potential of this sector in central cities and their suburbs, but also inform policymakers interested in attracting or retaining creative industries in cities to better target their strategies based on specific location patterns.

DATA AND METHODOLOGY

Data and Sample

To examine the spatial organization of creative industries and workers, we use the County Business Patterns Special Extracts (CBPSE) of the State of the Cities Data System (SOCDS), which had been used previously to assess the intrametropolitan distribution of employment in general and the financial sector in particular (Hill & Brennan, 2005; Immergluck, 2001). This data set is particularly useful for our purposes, because it gives us three key variables for both the MSA and associated central city: number of establishments (*not* firms, which can have multiple establishments), number of employees, and total annual payroll.[1] There are two important drawbacks to the CBPSE data, however. First, there are large numbers of suppressed

observations, making cross-metropolitan comparisons difficult in many cases. In addition to this limitation, detail for each industry is lacking, with only two- and three-digit NAICS codes for each variable.

After exploring several ways to overcome the obstacle of suppressed observations, we chose instead to limit the analysis to cities and MSAs without any suppressed observations at the two-digit NAICS level. Of the remaining 48 MSAs, we further eliminated the MSAs that have a predominant central city (greater than 80% of MSA jobs in central city) or an extremely weak central city (less than 15% of MSA jobs in central city), following the example of previous literature (Immergluck, 2001). This left us with a sample of 40 MSAs covering 44 central cities (four MSAs have two central cities). The list of cities by geographic region is in Appendix A. The cities represent a relatively representative cross-section of U.S. cities in terms of regional distribution with a total city population of over 32.5 million.

The time periods for our analysis are 1998 and 2002. These years were chosen because they were the largest and most recent range possible for consistent industrial codes and MSA designations. Note that 1998 was the first year in which the NAICS codes were in place, and the previous SIC codes were inadequate to serve our purposes, as they are relatively crude in defining service industries. Meanwhile, in 2002, a major revision of the metropolitan and micropolitan Core Based Statistical Areas (CBSAs) was implemented, making the size and number of MSAs noncomparable to previous data. Finally, at the time this data set was drawn, 2004 was the latest year for which data were available, making the period under both new systems only 2 years. Given these data constraints, we decided to use the period between 1998 and 2002 for consistent industrial codes and MSA definitions. This period begins with the economic expansion during the 1990s and ends with the early 2000 recession, during which time the information sector might have experienced slower growth. As was discussed earlier, the definitions of creative and cultural industries are still being developed, and thus we chose to use a rather broad definition. We include three industry categories: information; professional, scientific, and technical services; and arts, entertainment, and recreation industries (see Appendix B for detailed NAICS codes). We understand that not all workers in creative industries are in fact creative workers, but in this paper we are concerned with the locational distribution and economic impact of creative businesses, not of creative workers.

Methodology

As stated earlier, the subject of this paper is the geography of creative industries within the metropolitan region, and their economic impact and performance in cities and suburbs. On the basis of the literature, we expect to see higher concentrations of creative industries and workers in the urban core, and that they will decentralize at a lower rate than other industries (Glaeser et al., 2001; Glaeser & Kahn, 2001; Kneebone, 2009). More specifically, we examine the locational patterns for three industrial sectors broadly considered to make up the largest part of creative industries. We trace the number of workers and total annual payrolls for cities and their suburbs, and assess the level of centralization or decentralization that is occurring in these industries and change over time. We also look at how these trends vary by region and size of the MSAs. Previous research suggests that regional differences exist, with the Northeast and South being somewhat more centralized in general than the Midwest and West (Glaeser et al., 2001; Glaeser & Kahn, 2001), and that larger cities are generally more decentralized (Kneebone, 2009). An overview of the growth in these industries for the United States as a whole and for our selected sample is presented in Table 1.

The results seemed to confirm both the sample validity and the increasing importance of creative industries in the overall economy. For the United States as a whole, creative industries hired close to 11 million workers in 1998 (or 10% of all workers) and more than 12 million

TABLE 1

Size and Growth of Employment and Annual Payroll by Industry, 1998–2002

	Industry	Employment			Total Annual Payroll ($1,000s)		
		1998	2002	% change 1998–2002	1998	2002	% change 1998–2002
U.S. total	All industries	108,117,731	112,400,654	4.0%	3,309,405,533	3,943,179,606	19.2%
	All creative industries	10,777,376	12,383,316	14.9%	460,507,291	604,579,513	31.3%
	Information	3,141,957	3,536,120	12.5%	146,822,075	188,076,999	28.1%
	Professional services	6,051,636	7,046,205	16.4%	277,640,216	368,778,137	32.8%
	Arts and entertainment	1,583,783	1,800,991	13.7%	36,045,000	47,724,377	32.4%
Sample MSAs	All industries	29,153,158	30,336,794	4.1%	964,613,245	1,158,341,816	20.1%
	All creative industries	3,425,173	3,931,384	14.8%	157,010,265	210,737,338	34.2%
	Information	987,246	1,095,911	11.0%	51,928,921	67,635,088	30.2%
	Professional services	1,963,581	2,296,405	16.9%	91,547,782	125,265,769	36.8%
	Arts and entertainment	474,346	539,068	13.6%	13,533,562	17,836,481	31.8%

Source: Authors' calculations of County Business Patterns Special Extracts of the State of the Cities Data System, 1998 and 2002.

workers in 2002 (or 11% of all workers). The growth rate for jobs in this sector is 15% over the 4-year period, which is significantly greater than the 4% of all jobs in the country. In our 40-city sample, creative employment represents close to 12% of all employment in 1998 and 13% in 2002, giving credence to the sample as being representative of the population. The growth rate figures are almost identical to national figures as well. Of the three industries considered, professional services registered the highest growth rate, followed by arts and entertainment, then information. Creative industries payroll makes up about 14% of total payroll in 1998 (or 16% for the sample) and about 15% of total payroll in 2002 (or 18% for the sample), signaling the above average pay of creative jobs. Payroll grew at an even greater rate than employment in the creative sector, at 31% for U.S. total and 34% for our selected sample, outpacing that of overall payroll earnings.

FINDINGS

Importance of Creative Industries in Central Cities

Table 2 shows that for 2002, the share of central city employment held by creative industries averaged 14.5%, with a high of nearly 25% for San Francisco and a low of 7.7% for Stockton, CA. Five of the top six central cities with the most centralized creative industries—San Francisco, San Diego, Seattle, Los Angeles/Long Beach, and San Jose—were in the west. At the same time, four of the bottom six were in the west—Stockton, CA; Tacoma, WA; Riverside/San Bernardino, CA; and Spokane, WA—with two Midwestern cities—Fargo, ND and Grand Rapids, MI—rounding out the bottom. Although creative industries as a whole represent a 14% share of central city jobs, they make up nearly 21% of the total payroll in central cities. Again, San Francisco and Stockton held the top and bottom positions across all cities, at 31.7% and 8.5%, respectively.

TABLE 2

Share of Creative Employment and Earnings in Central Cities, 2002

Central City	All Jobs	Creative Jobs	% of All Jobs	Rank	All Earnings ($1,000s)	Creative Earnings ($1,000s)	% of all Earnings	Rank	Avg. all Earnings ($)	Avg. Creative Earnings ($)
San Francisco	501,768	125,011	24.9%	1	28,458,818	9,026,574	31.7%	1	56,717	72,206
San Diego	626,988	123,806	19.7%	2	26,422,372	7,483,054	28.3%	2	42,142	60,442
Orlando	229,007	42,107	18.4%	3	7,806,345	1,752,756	22.5%	6	34,088	41,626
Seattle	417,028	71,709	17.2%	4	19,152,535	4,262,207	22.3%	7	45,926	59,438
Los Angeles / Long Beach	1,588,657	271,830	17.1%	5	65,606,141	17,110,781	26.1%	3	41,297	62,947
San Jose	334,297	53,816	16.1%	6	19,111,470	4,045,944	21.2%	10	57,169	75,181
Chicago	1,177,807	189,253	16.1%	7	54,314,344	13,049,406	24.0%	5	46,115	68,952
Miami	210,278	33,117	15.7%	8	8,414,450	2,081,739	24.7%	4	40,016	62,860
Pittsburgh	314,093	48,679	15.5%	9	12,413,517	2,697,010	21.7%	8	39,522	55,404
Dallas	767,037	113,294	14.8%	10	32,819,265	6,977,508	21.3%	9	42,787	61,588
Cleveland	259,954	38,141	14.7%	11	10,449,445	2,148,632	20.6%	11	40,197	56,334
Sacramento	204,676	29,901	14.6%	12	7,244,411	1,464,402	20.2%	12	35,395	48,975
Charleston	59,285	8,494	14.3%	13	1,700,452	291,387	17.1%	18	28,683	34,305
Portland	62,979	8,788	14.0%	14	2,230,294	409,673	18.4%	15	35,413	46,617
Salt Lake City	229,855	31,476	13.7%	15	8,139,390	1,505,267	18.5%	14	35,411	47,823
Charlotte	443,246	60,172	13.6%	16	18,382,269	3,263,429	17.8%	17	41,472	54,235
Madison	145,170	18,442	12.7%	17	4,975,973	812,101	16.3%	20	34,277	44,035
Oakland	163,311	20,066	12.3%	18	6,848,206	1,245,611	18.2%	16	41,934	62,076
Omaha	284,709	34,950	12.3%	19	9,845,405	1,683,952	17.1%	19	34,581	48,182
Buffalo	144,855	17,606	12.2%	20	4,660,547	644,958	13.8%	27	32,174	36,633
Lexington-Fayette	139,587	16,448	11.8%	21	4,375,222	677,548	15.5%	23	31,344	41,193
Columbia	113,609	13,176	11.6%	22	3,661,455	560,197	15.3%	24	32,229	42,516
Phoenix / Mesa	825,378	95,616	11.6%	23	27,601,697	4,281,084	15.5%	22	33,441	44,774
Tucson	198,421	22,674	11.4%	24	5,643,822	1,051,811	18.6%	13	28,444	46,388
Baltimore	286,965	32,312	11.3%	25	11,279,616	1,765,022	15.6%	21	39,307	54,624
Jersey City	88,868	9,919	11.2%	26	5,118,076	598,053	11.7%	30	57,592	60,294

(Continued)

Table 2. Continued

Central City	All Jobs	Creative Jobs	% of All Jobs	Rank	All Earnings ($1,000s)	Creative Earnings ($1,000s)	% of all Earnings	Rank	Avg. all Earnings ($)	Avg. Creative Earnings ($)
Providence	102,665	11,362	11.1%	27	3,777,297	536,882	14.2%	26	36,792	47,252
Jacksonville	397,861	41,146	10.3%	28	13,077,656	1,868,516	14.3%	25	32,870	45,412
Mobile	118,254	11,686	9.9%	29	3,329,185	401,373	12.1%	29	28,153	34,346
Bakersfield	90,792	8,969	9.9%	30	2,779,043	300,816	10.8%	33	30,609	33,540
Wilmington	99,165	9,308	9.4%	31	5,034,657	504,718	10.0%	36	50,771	54,224
Toledo	140,248	13,088	9.3%	32	4,613,052	451,499	9.8%	38	32,892	34,497
Fresno	155,178	14,259	9.2%	33	4,642,557	487,769	10.5%	35	29,918	34,208
Santa Ana/Anaheim	322,959	29,506	9.1%	34	11,075,820	1,426,320	12.9%	28	34,295	48,340
Spokane	109,320	9,875	9.0%	35	3,347,461	375,461	11.2%	32	30,621	38,021
Grand Rapids	126,089	11,380	9.0%	36	4,444,144	476,460	10.7%	34	35,246	41,868
Fargo	66,152	5,954	9.0%	37	1,941,254	192,927	9.9%	37	29,345	32,403
Riverside/San Bernardino	150,881	13,291	8.8%	38	4,466,062	503,654	11.3%	31	29,600	37,894
Tacoma	88,261	7,497	8.5%	39	2,986,356	273,518	9.2%	39	33,836	36,484
Stockton	78,546	6,021	7.7%	40	2,368,319	200,551	8.5%	40	30,152	33,309
Totals	11,864,199	1,724,145	14.5%		474,558,400	98,890,570	20.8%		39,999	57,356
Information		488,814	4.1%			28,167,626	5.9%			57,624
Professional services		1,030,939	8.7%			62,075,935	13.1%			60,213
Arts and entertainment		204,392	1.7%			8,647,009	1.8%			42,306

Source: Authors' calculations of County Business Patterns Special Extracts of the State of the Cities Data System, 1998 and 2002.

Looking at the aggregate numbers by industry, we see variations across creative industries. The overall share of creative industries in central cities is largely driven by professional, scientific, and technical services at 8.7%; only 1.7% was in arts, entertainment, and recreation. Relative payrolls also varied, with professional services comprising 13.1% of total payroll with only 8.7% of the total number of jobs. Information also has a higher percentage of payroll than its share of jobs, but to a lesser extent (5.9% of payroll with 4.1% of jobs). Arts and entertainment had only a slightly higher portion of total payroll than its share of jobs, with 1.8% of earnings for 1.7% of the jobs. This indicates the relative pay premium of creative jobs in central cities.

Further calculating the average pay for a typical job versus a typical creative job in the central city reveals that this is indeed the case. Although intercity variations exist, the average job in the central city paid close to $40,000 in 2002. In comparison, an average creative job pays $57,356, with professional services being the highest at $60,213, and arts and entertainment being the lowest at $42,306. These results demonstrate the economic clout that creative jobs have on central city economies, and the potential economic impact such jobs can bring under a creative-oriented strategy. However, it is worth noting that professional service and information employment features much higher pay scales than the arts and entertainment industry. Thus, it is important to distinguish among these subsectors.

Intrametropolitan Distribution and Growth of Creative Industries

Although central cities were home to 39.5% of MSA jobs in 1998 and 39.1% in 2002, the creative industries in general were slightly more centralized (45.4% in central cities in 1998 and 43.9% in 2002, Table 3). Of the three industries, information was the most centralized in both years (49% in 1998 and 44.5% in 2002) although arts and entertainment was the least centralized (35.1% in 1998 and 37.9% in 2002), contrary to what the literature would suggest (Currid & Williams, 2010b; Florida et al., 2009; Rushton, 2006, 2009). This industry however experienced a slight centralizing trend during this period, the reverse of all industries combined, as well as the other two creative industries. A higher percentage of creative industry payroll was concentrated in central cities than the total payroll of all industries. With the exception of information, central city share of payroll for each industry and all combined was higher than share of jobs, suggesting that earnings are generally higher in city centers. The greatest disparity is observed for arts and entertainment, where close to 50% of industry earnings were concentrated in central cities although less than 40% of jobs in this industry were. The literature does not suggest a direct rationale for this disparity, but we do know that incomes in the arts are generally lower on average (Markusen, 2006), a finding reflected in our data. In the sample, average income was around $42,000, only slightly higher than that for all jobs ($40,000), but much lower than for other creative industries, which were closer to $60,000 on average (see Table 2).

Table 4 shows the intercity variation in central city's share of MSA creative jobs as compared to its share of MSA total jobs for both 1998 and 2002, as well as percentage point change over time. Figure 1 further plots the percentage change in the share of creative jobs in central cities against change in the share of all jobs in the central city for the 40 MSAs in the period 1998–2002. The X-axis represents change in central cities' share of jobs in all sectors, and the Y-axis is change in the central cities' share of jobs in creative industries. We divided the plot into quadrants according to the change in share of employment in each of the two industry groups. The diagonal dashed line dividing quadrants B and D, further divides them by the relative rate of centralization or decentralization. This dividing line represents the null hypothesis, that there is *no difference* between the rate and direction of change in the concentration of creative jobs in the central city and those of all jobs. Therefore, creative industry jobs in the MSAs above and to

TABLE 3

Central City Share of MSA Employment and Annual Payroll by Industry

	Employment					Total Annual Payroll				
	1998		2002		% point change	1998		2002		% point change
	Share	Jobs	Share	Jobs	1998–2002	Share	Payroll	Share	Payroll	1998–2002
All industries	39.5%	11,528,526	39.1%	11,864,199	−0.4%	41.1%	396,933,852	41.0%	474,558,400	−0.1%
All creative industries	45.4%	1,553,913	43.9%	1,724,145	−1.5%	48.7%	76,540,300	46.9%	98,890,570	−1.8%
Information	49.0%	483,500	44.6%	488,814	−4.4%	44.9%	23,338,905	41.6%	28,167,626	−3.3%
Professional services	46.0%	904,139	44.9%	1,030,939	−1.1%	51.0%	46,649,428	49.6%	62,075,935	−1.4%
Arts and entertainment	35.1%	166,274	37.9%	204,392	2.8%	48.4%	6,551,967	48.5%	8,647,009	0.1%

Source: Authors' calculations of County Business Patterns Special Extracts of the State of the Cities Data System, 1998 and 2002.

TABLE 4

Change in Central City's Share of MSA Jobs

MSA/PMSA/NECMA	Central City Share All Jobs			Central City Share Creative Jobs			Diff in Change	Plot Region
	1998	2002	Change	1998	2002	Change		
Buffalo–Niagara Falls, NY MSA	31.3%	30.8%	−0.5%	38.2%	43.6%	5.4%	5.9%	A
Toledo, OH MSA	50.8%	50.0%	−0.8%	55.9%	58.9%	2.9%	3.8%	
Cleveland–Lorain–Elyria, OH PMSA	27.4%	26.0%	−1.4%	39.4%	40.4%	1.1%	2.4%	
Orange County, CA PMSA	24.2%	23.3%	−0.8%	15.3%	16.5%	1.3%	2.1%	
Miami, FL PMSA	25.8%	25.6%	−0.2%	34.7%	35.5%	0.8%	1.0%	
Bakersfield, CA MSA	52.5%	58.9%	6.4%	55.6%	65.9%	10.3%	3.9%	B1
Portland, ME NECMA	40.9%	42.4%	1.5%	49.7%	55.0%	5.2%	3.8%	
Orlando, FL MSA	24.2%	28.9%	4.6%	28.8%	35.8%	7.0%	2.4%	
Charlotte–Gastonia–Rock Hill, NC–SC MSA	52.3%	56.1%	3.8%	69.3%	75.3%	6.0%	2.2%	
Mobile, AL MSA	60.0%	60.1%	0.1%	70.0%	70.8%	0.9%	0.8%	
Los Angeles–Long Beach, CA PMSA	41.2%	41.9%	0.7%	40.7%	40.9%	0.2%	−0.5%	B2
Fargo–Moorhead, ND–MN MSA	73.6%	74.9%	1.3%	83.2%	83.3%	0.2%	−1.1%	
Salt Lake City–Ogden, UT MSA	37.1%	38.7%	1.6%	47.1%	46.7%	−0.4%	−2.0%	C
Madison, WI MSA	63.2%	64.0%	0.8%	72.2%	70.4%	−1.8%	−2.6%	
San Jose, CA PMSA	37.2%	37.3%	0.1%	33.8%	30.9%	−2.8%	−3.0%	
Charleston, WV MSA	51.0%	52.2%	1.1%	75.3%	72.9%	−2.4%	−3.6%	
Wilmington–Newark, DE–MD PMSA	31.3%	32.0%	0.6%	34.1%	30.9%	−3.2%	−3.8%	
Fresno, CA MSA	62.7%	63.7%	1.0%	72.9%	68.7%	−4.2%	−5.2%	
Seattle–Bellevue–Everett, WA PMSA	34.8%	35.2%	0.4%	43.4%	38.3%	−5.1%	−5.5%	
Spokane, WA MSA	63.1%	66.6%	3.5%	75.9%	66.3%	−9.5%	−13.0%	
Tucson, AZ MSA	73.7%	67.7%	−6.0%	74.6%	73.5%	−1.1%	4.9%	D1
San Francisco, CA PMSA	55.2%	53.4%	−1.8%	60.3%	59.9%	−0.5%	1.3%	
Lexington, KY MSA	65.2%	62.9%	−2.3%	82.3%	81.2%	−1.1%	1.2%	
Omaha, NE–IA MSA	77.4%	76.2%	−1.2%	81.2%	80.4%	−0.8%	0.3%	
Riverside–San Bernardino, CA PMSA	17.8%	16.5%	−1.4%	20.3%	18.8%	−1.4%	−0.1%	D2
Baltimore, MD PMSA	30.1%	27.3%	−2.8%	27.3%	24.4%	−2.9%	−0.2%	

(*Continued*)

Table 4. Continued

MSA/PMSA/NECMA	Central City Share All Jobs			Central City Share Creative Jobs			Diff in Change	Plot Region
	1998	2002	Change	1998	2002	Change		
Providence–Warwick–Pawtucket, RI NECMA	26.6%	26.5%	−0.1%	35.6%	35.0%	−0.5%	−0.5%	
Sacramento, CA PMSA	34.6%	34.4%	−0.2%	38.6%	37.8%	−0.8%	−0.6%	
Pittsburgh, PA MSA	30.8%	30.2%	−0.6%	43.7%	42.5%	−1.2%	−0.7%	
Columbia, SC MSA	47.3%	46.7%	−0.6%	56.9%	55.6%	−1.3%	−0.7%	
San Diego, CA MSA	59.2%	57.9%	−1.3%	74.2%	72.1%	−2.0%	−0.8%	
Oakland, CA PMSA	17.1%	16.8%	−0.3%	15.6%	14.3%	−1.3%	−1.0%	
Jacksonville, FL MSA	83.1%	81.8%	−1.3%	85.9%	83.6%	−2.4%	−1.1%	
Chicago, IL PMSA	32.0%	31.4%	−0.6%	43.9%	41.8%	−2.2%	−1.6%	
Stockton–Lodi, CA MSA	49.0%	48.8%	−0.2%	61.6%	59.3%	−2.3%	−2.1%	
Jersey City, NJ PMSA	39.3%	38.3%	−1.0%	51.9%	48.7%	−3.1%	−2.1%	
Tacoma, WA PMSA	46.9%	44.2%	−2.7%	52.9%	45.8%	−7.1%	−4.4%	
Phoenix–Mesa, AZ MSA	61.0%	59.4%	−1.6%	67.5%	61.3%	−6.2%	−4.6%	
Grand Rapids–Muskegon–Holland, MI MSA	26.2%	24.1%	−2.1%	39.4%	32.7%	−6.7%	−4.6%	
Dallas, TX PMSA	45.8%	41.8%	−3.9%	55.6%	46.0%	−9.6%	−5.6%	
All sample MSAs	39.5%	39.1%	−0.4%	45.4%	43.9%	−1.5%	−1.1%	

Source: Authors' calculations of County Business Patterns Special Extracts of the State of the Cities Data System, 1998 and 2002.

the left of this line (regions A, B_1, and D_1) are either centralizing more rapidly, or decentralizing less rapidly, than employment in general.

The central cities *more successful* in expanding or maintaining creative industry employment relative to suburban areas are in D_1, where the share of metropolitan employment *decreased* for all jobs in the central city, but the cities' share of creative jobs *decreased at a lower rate*; A, where the central cities' share of creative jobs increased, although decreasing for all jobs; and B_1, where the share *increased* for all jobs in the central city, but cities' share of creative jobs *increased at a higher rate*. Central cities *less successful* in expanding or maintaining creative industry employment relative to the suburban areas were found in B_2, where the share for all jobs *increased* in the central city, but the cities' share of creative jobs *increased at a lower rate*; C, where the share of creative jobs *decreased* in the central city, although *increasing* for all jobs; and D_2, where the share for all jobs in the central city *decreased*, but share of creative jobs *decreased at an even higher rate*.

We can see from Table 4 and Figure 1 that there are 14 MSAs in the *more successful* group, or 35% of the sample MSAs. Of these, the 10 in A and B_1 showed centralization for creative industries, and in 5 of them (region A), this was the reverse of the trend for employment as a whole. Buffalo–Niagara Falls showed especially strong creative industry centralization, with a 5.4 percentage point increase in creative jobs in the central city as compared to a 0.5 percentage point decrease for all jobs. The four MSAs in region D_1 showed a slight decentralization for creative industries compared to even more rapid decentralization for all employment. Especially
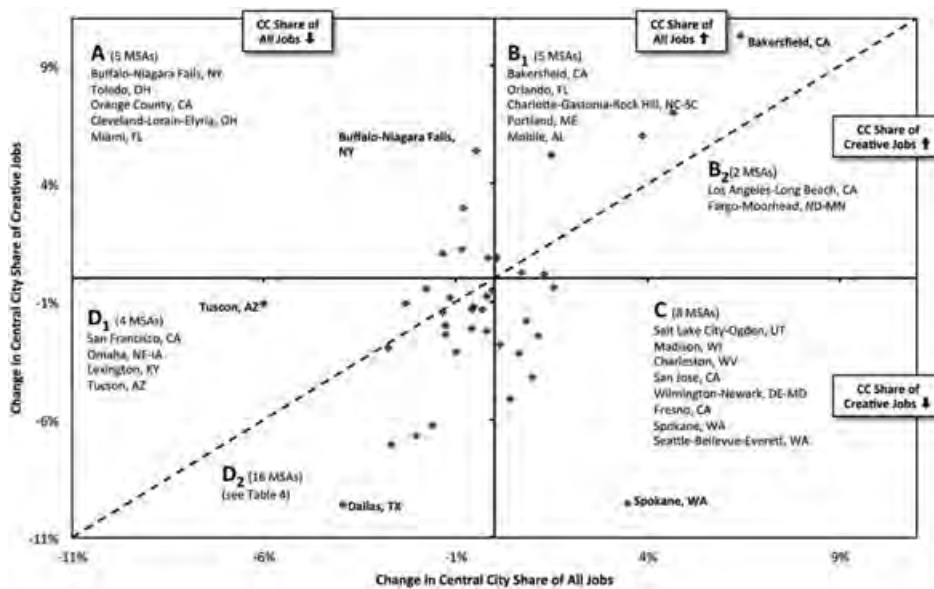
FIGURE 1

Change in Central City's Share of Jobs, 1998–2002

notable was Tucson, where the loss in creative jobs in the central city was only 1.1 percentage points, although the share of all jobs in the central city dropped by 6 percentage points. Another notable outlier was Bakersfield, CA, with the highest rate of centralization for creative jobs and all jobs (10.3 and 6.4 percentage points, respectively). However, by far the largest single group was region D_2, with 16 MSAs (40%), in which jobs in creative industries decentralized at a more rapid rate than those of all industries. For example, Dallas, although losing 3.9 percentage points for all jobs, lost nearly 10 percentage points for creative jobs. Perhaps least surprisingly, however, employment decentralized for creative industries in 28 of the 40 MSAs, or 70% (regions C and D), and for all industries in 25, or 63% of the sample MSAs (regions A and D). All these indicate that although central cities enjoy a relative concentration of creative jobs, such advantages have been gradually losing ground over recent years.

This next analysis, represented by Table 5 and Figure 2, looks at the differences in employment growth for creative employment relative to overall employment growth for central cities. On average, total jobs grew by 4.5% in central cities and 5% in their suburbs during this period. Creative jobs grew much faster in comparison, with 12.8% for central cities and 15.1% for suburbs. It is evident that the creative sector experienced robust growth over other industries, and that its growth in the suburbs outpaced that in the urban core. This roughly corresponds to the declining share of this industry in central cities as seen in the share analysis above. In Figure 2, the X-axis represents job growth in all sectors, and the Y-axis is employment growth in creative industries.

The sectors in which central cities have been *more successful* in attracting or retaining creative industry employment are D_1, where employment *decreased* for all jobs in the central city, but creative jobs *decreased at a lower rate*; A, where creative employment increased in the central city, although overall employment *decreased*; and B_1, where employment *increased* overall in the central city, but creative jobs *increased at a higher rate*. Central cities *less successful* in

TABLE 5

Variation in Percentage Change of Employment in Central Cities and Suburbs

MSA/PMSA/NECMA	All Jobs			Creative Jobs			Diff in Change	Plot Region
	Central City % Change 1998–2002	Suburb % Change 1998–2002	Diff	Central City % Change 1998–2002	Suburb % Change 1998–2002	Diff		
Miami, FL PMSA	−2.5%	−1.6%	−0.9%	26.2%	21.6%	4.6%	28.8%	A
Buffalo–Niagara Falls, NY MSA	−0.8%	1.4%	−2.2%	24.2%	−0.8%	25.0%	25.0%	
San Francisco, CA PMSA	−5.5%	1.5%	−7.0%	16.3%	18.7%	−2.4%	21.9%	
Cleveland–Lorain– Elyria, OH PMSA	−8.9%	−2.4%	−6.5%	6.7%	2.0%	4.7%	15.6%	
San Jose, CA PMSA	−5.0%	−5.6%	0.6%	10.1%	25.4%	−15.3%	15.2%	
Toledo, OH MSA	−2.9%	0.4%	−3.3%	11.7%	−1.0%	12.7%	14.6%	
Lexington, KY MSA	−1.7%	8.7%	−10.4%	9.3%	17.6%	−8.3%	11.0%	
Mobile, AL MSA	−1.7%	−2.0%	0.3%	8.9%	4.4%	4.4%	10.6%	
Baltimore, MD PMSA	−3.9%	10.0%	−13.9%	5.9%	23.5%	−17.6%	9.8%	
Tacoma, WA PMSA	−1.3%	10.0%	−11.3%	6.8%	41.7%	−35.0%	8.1%	
Chicago, IL PMSA	−1.6%	1.1%	−2.7%	2.9%	12.4%	−9.5%	4.5%	
Portland, ME NECMA	9.5%	3.0%	6.5%	35.1%	9.5%	25.6%	25.6%	B1
Orange County, CA PMSA	4.8%	9.8%	−5.0%	24.6%	13.4%	11.2%	19.8%	
Salt Lake City–Ogden, UT MSA	4.9%	−1.9%	6.8%	22.3%	24.4%	−2.1%	17.4%	
Charlotte– Gastonia–Rock Hill, NC-SC MSA	16.7%	−0.1%	16.7%	34.0%	−0.9%	34.9%	17.3%	
San Diego, CA MSA	10.3%	16.2%	−5.9%	25.4%	39.1%	−13.6%	15.1%	
Providence– Warwick– Pawtucket, RI NECMA	2.8%	3.2%	−0.3%	16.8%	19.7%	−2.8%	14.0%	
Seattle–Bellevue– Everett, WA PMSA	2.6%	0.7%	1.8%	15.3%	42.4%	−27.1%	12.7%	
Bakersfield, CA MSA†	21.4%	−6.4%	27.8%	34.0%	−13.1%	47.1%	12.6%	
Riverside–San Bernardino, CA PMSA	10.2%	21.3%	−11.0%	22.3%	34.1%	−11.8%	12.1%	
Jacksonville, FL MSA	4.2%	13.8%	−9.6%	15.3%	38.8%	−23.5%	11.1%	
Orlando, FL MSA	26.6%	−0.2%	26.8%	37.6%	−0.3%	37.9%	11.0%	
Pittsburgh, PA MSA	1.4%	4.1%	−2.7%	12.2%	17.9%	−5.7%	10.8%	
Tucson, AZ MSA	0.4%	34.4%	−34.1%	10.8%	17.4%	−6.6%	10.5%	

(*Continued*)

Table 5. Continued

MSA/PMSA/NECMA	All Jobs			Creative Jobs			Diff in Change	Plot Region
	Central City % Change 1998–2002	Suburb % Change 1998–2002	Diff	Central City % Change 1998–2002	Suburb % Change 1998–2002	Diff		
Oakland, CA PMSA	7.7%	10.1%	−2.4%	14.9%	27.5%	−12.6%	7.3%	
Stockton–Lodi, CA MSA	11.9%	12.8%	−0.9%	16.7%	28.3%	−11.5%	4.8%	
Sacramento, CA PMSA	17.3%	18.3%	−1.0%	21.4%	25.5%	−4.1%	4.2%	
Los Angeles–Long Beach, CA PMSA	4.4%	1.4%	3.1%	8.3%	7.4%	0.9%	3.9%	
Madison, WI MSA	6.9%	3.2%	3.7%	9.7%	19.9%	−10.1%	2.8%	
Fargo–Moorhead, ND–MN MSA	4.7%	−2.1%	6.8%	6.9%	5.6%	1.3%	2.2%	
Phoenix–Mesa, AZ MSA	6.2%	13.6%	−7.4%	5.6%	38.5%	−33.0%	−0.7%	B2
Fresno, CA MSA	8.6%	4.1%	4.5%	5.7%	29.6%	−23.9%	−2.9%	
Spokane, WA MSA†	7.6%	−7.6%	15.3%	4.1%	66.1%	−62.0%	−3.5%	
Charleston, WV MSA	9.4%	4.5%	4.9%	4.3%	18.4%	−14.1%	−5.0%	
Omaha, NE–IA MSA	3.0%	10.0%	−7.0%	−0.8%	4.8%	−5.6%	−3.8%	C
Columbia, SC MSA	2.9%	5.3%	−2.4%	−2.2%	3.1%	−5.4%	−5.1%	
Jersey City, NJ PMSA	7.7%	12.3%	−4.6%	−3.9%	9.0%	−12.9%	−11.6%	
Wilmington–Newark, DE–MD PMSA	11.6%	8.4%	3.2%	−2.2%	13.1%	−15.3%	−13.8%	
Grand Rapids–Muskegon–Holland, MI MSA	−6.7%	4.1%	−10.8%	−5.1%	26.9%	−32.0%	1.7%	D1
Dallas, TX PMSA†	−4.1%	12.5%	−16.7%	−6.0%	38.1%	−44.1%	−1.9%	D2
All sample MSAs	2.9%	4.8%	−1.9%	11.0%	18.0%	−7.0%	5.1%	

Source: Authors' calculations of County Business Patterns Special Extracts of the State of the Cities Data System, 1998 and 2002.
†Bakersfield, Spokane, and Dallas are omitted as outliers in Table 8.

attracting or retaining creative industry employment relative to the suburban areas are found in B$_2$, where employment *increased* for all jobs in the central city, but creative jobs *increased at a lower rate*; C, where creative employment *decreased* in the central city, although overall employment *increased*; and D$_2$, where employment *decreased* for all jobs in the central city, but creative jobs *decreased at an even higher rate*.

But in contrast to Figure 1, Figure 2 shows that over three quarters of the MSAs were in the *more successful* half of the plot. Some of the notable outliers include Miami, in quadrant A, which showed the greatest relative creative industry growth, with creative employment growing at a rate of over 26%, although all jobs in the central city *declined* by 2.5%, a difference of nearly 30 percentage points. Miami was followed closely by Portland, ME, at 35% and 9.5% growth, respectively, and Buffalo–Niagara Falls, NY, at 24% and –1%, respectively. The differentials favoring growth in all industries were smaller; the largest of these being a bit less than 14% for Wilmington–Newark, DE, where creative jobs in the central city declined by 2% as all jobs grew by 11.6%. We also looked at the growth in creative jobs relative to all jobs for the suburban
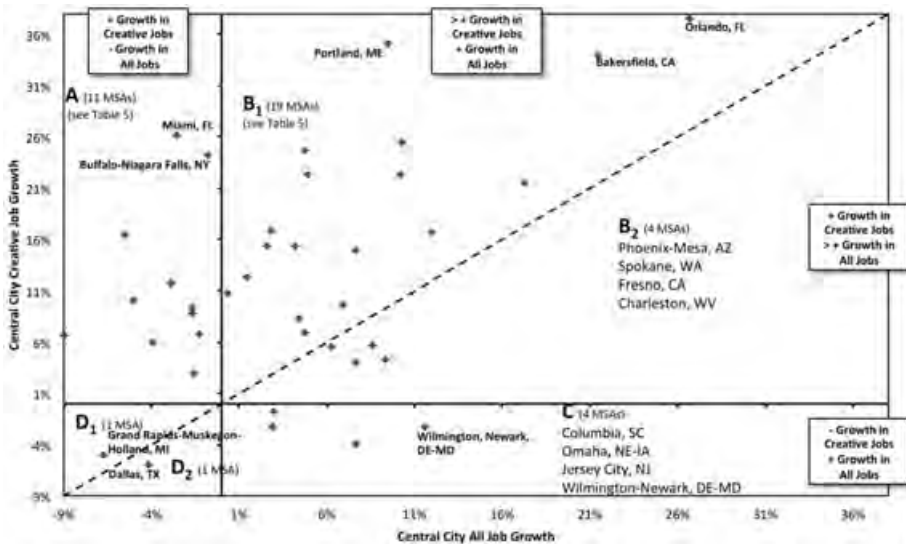
FIGURE 2

Industry Job Growth in Central Cities, 1998–2002

areas, and although job growth favored creative industries here as well, the differences were less pronounced. In the suburbs, there were three MSAs with declines in both creative and all sectors, and none in which creative employment declined more than overall employment. When central city and suburbs are compared, in a majority of cases, the suburbs outpaced the central cities in the growth of creative industries over the time period.

Based on the data from these two primary metrics—share and growth of creative industries—we developed a typology of central city creativity (see Figure 3). Using the direction of the change in the central city's share of metropolitan creative jobs and the direction of the change in central city's total creative employment, four types of cities were created. However, all of the 40 cities in the sample can be categorized within three of these types. We identified these types as *creative flight cities*, in which both share and number of creative jobs in the central city declined; *creative sprawl cities*, where creative jobs in the central city grew, although their metropolitan share declined; and *creative engine cities*, which saw creative jobs grow in both absolute and relative terms.

Variation by Region, City Size, and Industrial Structure

Tables 6 and 7 show how regional and central city size differences impact creative industry centralization. Although the regional differences shown in Table 6 were somewhat negligible in terms of both share and change over the period, the small sample size for some regions may make those differences harder to detect. We expected to see higher rates of centralization in the Northeast and South (Glaeser et al., 2001; Glaeser & Kahn, 2001), but this was not borne out by the data for creative industries. In all but the Northeast, a region with only five cities, and which did *not* include New York City, the share of creative industry employment in central cities in both years was between 46% and 48%, respectively, although the Northeastern cities had slightly less than a 33% share in both years. But it is also fair to say that the patterns we observed on the national level are not driven by a particularly creative region.

TABLE 6

Variation in Creative Industry Employment Decentralization by Region, 1998–2002

Region (Census Division)	Number of Cities	1998 Average Share	2002 Average Share	Average Change in Central City Share of Metropolitan Creative Industry Jobs, 1998–2002 (%)
Northeast	5	32.9%	32.8%	−0.1%
South	11	47.9%	47.2%	−0.7%
Midwest	7	47.9%	47.3%	−0.6%
West	17	46.7%	46.1%	−0.7%
Total	40	45.5%	44.9%	−0.6%

Source: Authors' calculations of County Business Patterns Special Extracts of the State of the Cities Data System, 1998 and 2002.

TABLE 7

Variation in Creative Industry Employment Decentralization by Central City Size, 1998–2002

Central City Population	Number of Cities	1998 Average Share	2002 Average Share	Average Change in Central City Share of Metropolitan Creative Industry Jobs, 1998–2002 (%)
>1,000,000	5	51.1%	48.8%	−2.2%
500,000–999,999	8	35.6%	34.6%	−1.0%
250,000–499,999	10	45.6%	45.2%	−0.4%
100,000–249,999	13	47.8%	47.6%	−0.2%
<100,000	4	50.1%	50.7%	0.6%
Total	40	45.5%	44.9%	−0.6%

Source: Authors' calculations of County Business Patterns Special Extracts of the State of the Cities Data System, 1998 and 2002.
Note: Population size based on 1998 census estimates, and includes all central cities in each MSA.

Table 7 shows that employment in larger cities decentralized more quickly over the period, which was suggested by previous studies (Kneebone, 2009). Population sizes of the central cities are provided in Appendix C. In the five central cities with over one million in population, the share of creative jobs in central cities declined from 51.1% to 48.8%, a drop of 2.2 percentage points. None of the other size categories declined more than one percentage point between 1998 and 2002. These results should probably be interpreted cautiously, however, because there are only five cities in the largest and smallest categories.

We further conducted multivariate regression analysis to assess the factors leading to employment concentration (or possibly more likely, decentralization) of creative industries. The dependent variable we chose to measure this phenomenon is the change in the central cities' share of metropolitan creative jobs, 1998–2002. Based on theory and previous research, we included three groups of independent variables: city size, industrial specialization, and region.

We chose metropolitan total employment in 1998, the base year of the period we studied, and city population in the same year as city size variables. We expect the share of metropolitan employment to correlate positively with the centralization of creative industry jobs (Glaeser et al., 2001; Glaeser & Kahn, 2001), although population size correlates with decentralization for total employment (Kneebone, 2009). Industrial specialization is measured by the share of all metropolitan jobs in creative industries (1998), the central city's share of metropolitan creative jobs (1998), the growth of creative jobs in the metropolitan area (1998–2002), and the share of all MSA creative jobs in each of the three creative subsectors (with information being the reference

(-) Change in Central City Share of Creative Jobs (+)

Creative Flight Cities		
Dallas		
Omaha		
Jersey City		
Grand Rapids, MI		
Columbia, SC		
Wilmington, DE		

Creative Sprawl Cities		Creative Engine Cities
Chicago	Fresno	Los Angeles-Long Beach
Phoenix-Mesa	Oakland	Santa Ana-Anaheim (Orange County)
San Diego	Pittsburgh	Charlotte
San Jose	Lexington, KY	Cleveland
San Francisco	Stockton	Miami
Baltimore	Madison, WI	Toledo
Jacksonville, FL	Spokane	Buffalo
Seattle	Tacoma	Bakersfield
Tucson	Salt Lake City	Mobile
Riverside-San Bernardino	Providence, RI	Orlando
Sacramento	Charleston, WV	Fargo
		Portland, ME

Growth of Central City Creative Jobs (-) (+) — (vertical axis label)

FIGURE 3

Creative City Typology and Sample Cities

group). Because cities specializing in services, especially "idea-intensive" ones such as creative industries, tend to be more centralized, we would expect regional specialization in these industries to disproportionally benefit central cities.

Finally, we entered regional dummy variables of the South, Midwest, and West, using the Northeast region as a reference group. In Immergluck's study of the financial services sector, he found that the greatest decentralization in this industry occurred in the South and Northeast, with lower rates in the West (especially California) and Midwest (Immergluck, 2001), though these findings were not supported by his multivariate analysis. Hill and Brennan (2005) found that overall the pattern was somewhat different, which has led us to predict that the Midwest will be the region most rapidly decentralizing, followed by the South, West, and Northeast, respectively.

Given the small sample size (40 cities) and broadly defined industrial sectors (two-digit NAICS codes), using the full sample yielded no significant coefficients. Consequently, we followed Immergluck's (2001) example of eliminating a few outliers. In this case, 3 of the 40 cities (Dallas, Spokane, and Bakersfield) had dependent variables at the extreme tails of the value distribution curve[2] and were thus dropped from the model. The results from both models are shown in Table 8. Although no significant variables were found in the model using the 40-city sample, in most cases their signs and magnitudes were similar to those in the reduced observation model. Robust standard errors are reported to address the issue of heteroskedasticity. The two general population variables (1998 MSA employment and 1998 city population) yielded variables with different signs in each model, but the coefficients in both cases were very small, and not statistically significant.[3]

TABLE 8

Change in Central City's Creative Job Growth & Share of Creative Jobs

	40 Cities			37 Cities[†]		
	Coef.	Robust SE	t	Coef.	Robust SE	t
Constant	−0.050	(0.089)	−0.560	−0.071	(0.089)	0.101
Total metro employment	0.000	(0.000)	−1.180	0.000	(0.000)	0.000
Share of metro jobs in creative industries, 1998	0.415	(0.308)	1.350	0.511***	(0.308)	0.938
Share of creative jobs located in city, 1998	−0.054	(0.049)	−1.120	−0.004	(0.049)	0.028
Percentage increase in metro creative jobs, 1998–2002	−0.075	(0.121)	−0.620	−0.018	(0.121)	0.130
Central city population, 1998	0.000	(0.000)	0.860	0.000	(0.000)	0.000
Share of metro creative jobs in professional, technical, and scientific services, 1998	0.085	(0.114)	0.740	0.030	(0.114)	0.279
Share of metro creative jobs in arts, entertainment, and recreation, 1998	0.156	(0.138)	1.140	0.173*	(0.138)	0.390
South	−0.021	(0.022)	−0.920	−0.021	(0.022)	0.017
Midwest	−0.015	(0.024)	−0.620	−0.024	(0.024)	0.026
West	−0.039	(0.032)	−1.220	−0.0546**	(0.032)	0.015
R-squared	0.173			0.317		

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.
[†]Excludes two cities (Dallas and Spokane) for which the dependent variable is less than –0.09 and one city (Bakersfield, CA) for which the dependent variable was greater than 0.09.

Three variables were significant in the reduced sample model: initial MSA creative employment share, the West region, and the central cities' share of arts, entertainment, and recreation jobs. These results indicate that all else being equal, each percentage point increase in the share of MSA employment in creative industries increased the share of creative jobs in the central city by 0.5 percentage points. In other words, the more a metropolitan area specializes in creative industries, the greater the employment centralization in those industries. In terms of regional differences, Western cities were centralizing at a slower rate (or decentralizing at a faster rate) than cities in the Northeast. The coefficients for other regions showed the same sign as the West, but were not significant. This is in line with descriptive statistics seen in Table 6. And for each percentage point increase in the central cities' share of arts, entertainment, and recreation jobs, the share of creative jobs in the central city increased by nearly 0.2 percentage points.

CONCLUSION AND DISCUSSION

In this paper we use a selected 40-city sample to examine the intrametropolitan distribution of creative industries and its growth over time, especially whether the central city has a natural advantage in concentrating creativity. Our three industries of focus—information, professional services, and arts and entertainment—all experienced substantive growth over the study period (1998–2002) at rates that outpaced that of other industries. Together, they make up more than 10% of the economy and their importance is increasing over time as well.

Creative industries constitute 14.5% of central city total employment and 20.8% of central city total payroll, indicating that they are relatively well-paying jobs. This is especially true for information and professional services jobs. Our results establish that creative industry jobs, in general, were more likely to be in the central cities (43.9% in 2002) than other industries (39.1%

in 2002), and the difference is even higher for annual earnings. Contrary to expectations, however, arts and entertainment employment is less clustered in the central city than overall employment (37.9% in 2002), though close to half of the annual earnings in this industry are in the urban core. In general, creative industries are an important source of employment and wealth for central city economies. Trends over the 5 years suggest that although there exist intercity variations, the majority of cities showed creative industries either *centralizing at a lower rate* or *decentralizing at a higher rate* than industries in general. Although creative industry growth in a typical central city outpaced the growth of all industries (11% versus 2.9%), their corresponding suburban areas saw even faster growth in this sector (18%). Regional variations of creative industry distribution are not substantive, though creative jobs in larger cities decentralized more rapidly than those in smaller cities.

We set out to address the mismatch of research and policy, the former occurring mostly at the metropolitan level, and the latter at the municipal level. Understanding the implications of this study for central cities will empower policymakers to consider industries that are either most likely to locate in their cities, and those that are less likely to move to the neighboring suburban areas. The analysis presented contributes to our understanding of intrametropolitan location for creative industries, but also suggests some challenges going forward. Although it does seem that these industries were somewhat more concentrated in central cities during the period studied, the increasing decentralization of the creative sector suggests that policymakers should consider how policies designed to attract and retain this sector might be shaped by this overarching market trend, and whether they may be able to reverse it through the policy process. Thus, whether cities around the country can expect the creative sector to maintain its current presence and momentum in their jurisdictions is an open question.

As cities continue to pursue creative-oriented economic development strategies, it is important to consider the central cities' unique comparative advantage on a city-by-city and industry-by-industry basis. As noted earlier, the forces that shape these various creative industries are likely different. Therefore, there is possibly no silver bullet for a one-size-fits-all economic development remedy that applies to all these industries. Returning to the typology developed earlier, as well as the findings on the relative growth and share of creative industries within and around central cities, we can consider strategies appropriate to each.

For *creative flight cities*, these central cities are likely suffering from other issues that either push jobs to suburban areas, or simply make them less attractive than the alternatives. Locality development strategies that encourage social interaction in downtown areas, as well as targeting creative industries for which density and centrality are attractive to firms and employees, might help reverse the trend of creative flight.

For *creative sprawl cities*, although all of these cities gained creative jobs, they did so at a lower rate than their suburbs. These cities all experienced employment growth generally, but even more so in creative industry jobs. Nevertheless, all 22 saw their share of creative employment decline. These cities represent, in most cases, growing cities within regions of even greater growth, often characterized by urban sprawl. It should not be too surprising, then, that all but five are in the West or South, and that more than three quarters of the Western cities in our sample are in this group.

Although regional and size effects exist, regression results suggest that the most important factor that determined the spatial distribution of creative industries is metropolitan industrial specialization. That is, metropolitan areas specializing in creative employment have seen centralizing creative industry employment. Regional cooperation in expanding employment share in this sector may thus be warranted to ensure part of that growth happens in the central cities. Encouraging the growth of creative industries may be the elusive "win–win" proposition in the intrametropolitan competition for economic development. Suburban areas would benefit from expansion in a growing sector with relatively high-wage employment, although central cities would benefit by helping them offset the rapid decentralization of other employment sectors.

For *creative engine cities*, these are cities in which creative industry employment is expanding, and even helping to drive the regional economy from the central city outward. Data suggest that the growth in creative jobs in the central city is driving employment in all sectors throughout the region. Cities in this group may want to continue on their current path, as eventually creative job growth should lead overall employment growth as well. Cleveland may be a good example here of a community that saw declining employment years ago, and has worked hard to drive growth through creative employment. Time will tell if that investment will pay off.

So can creative industry development benefit central cities in the regional economy? This research serves as a first step in addressing this important question, but it is limited in scope in numerous ways. The data are limited both in the number of variables available and the high incidence of missing values that constrained our sample size. Imputing values based on existing estimates is one approach that might allow more detail. More recent statistics can be desirable as well to provide a longer term trajectory of the spatial evolution of jobs. Analysis in this paper ends in year 2002 given the fact that equivalent data are not yet available to compile systematic comparison for the period after that. Our preliminary analysis shows that although the growth rate for all industries was 4.4% between 2002 and 2007, creative industries registered 8.4% overall growth during that period. This growth rate is lower than the 14.9% for the 4 years before 2002. One major factor behind this slower growth was the stagnation of the information industry during this period, with a slight decline in absolute employment 2002–2007. The other two industries, professional services and arts and entertainment, both sustained their two-digit growth rate during the same period. Based on our findings, information is the most centralized industry of the three. If this pattern continues to hold in the intervening years, the declining share of information industry in the creative sector would necessarily mean that this sector in general will suburbanize faster than it did previously. However, detailed analysis would be required to examine these dynamics. Future research should also explore the particular reasons behind the location decisions of specific industries and the policy incentives that can effectively attract them.

APPENDIX A: SAMPLE MSAs BY REGION

Northeast (5 MSAs)	Midwest (7 MSAs)	South (11 MSAs)	West (17 MSAs)
Buffalo–Niagara Falls, NY MSA	Chicago, IL PMSA	Baltimore, MD PMSA	Bakersfield, CA MSA
Jersey City, NJ PMSA	Cleveland–Lorain–Elyria, OH PMSA	Charleston, WV MSA	Fresno, CA MSA
Pittsburgh, PA MSA	Fargo–Moorhead, ND–MN MSA	Charlotte–Gastonia–Rock Hill, NC–SC MSA	Los Angeles–Long Beach, CA PMSA
Portland, ME NECMA	Grand Rapids–Muskegon–Holland, MI MSA	Columbia, SC MSA	Oakland, CA PMSA
Providence–Warwick–Pawtucket, RI NECMA	Madison, WI MSA	Dallas, TX PMSA	Orange County, CA PMSA
	Omaha, NE–IA MSA	Jacksonville, FL MSA	Phoenix–Mesa, AZ MSA
	Toledo, OH MSA	Lexington, KY MSA	Riverside–San Bernardino, CA PMSA
		Miami, FL PMSA	Sacramento, CA PMSA
		Mobile, AL MSA	Salt Lake City–Ogden, UT MSA
		Orlando, FL MSA	San Diego, CA MSA
		Wilmington–Newark, DE–MD PMSA	San Francisco, CA PMSA
			San Jose, CA PMSA
			Seattle–Bellevue–Everett, WA PMSA
			Spokane, WA MSA
			Stockton–Lodi, CA MSA
			Tacoma, WA PMSA
			Tucson, AZ MSA

APPENDIX B: SELECTED NAICS FOR CREATIVE INDUSTRIES

51	**Information**
5110	Publishing industries
5120	Motion picture and sound recording industries
5130	Broadcasting and telecommunications
5140	Information and data processing services
54	**Professional, scientific, and technical services**
71	**Arts, entertainment, and recreation**
7110	Performing arts, spectator sports, and related industries
7120	Museums, historical sites, and like institutions
7130	Amusement, gambling, and recreation industries

APPENDIX C: SAMPLE CENTRAL CITIES BY SIZE*

1,000,000 (5 Cities)	500,000–999,999 (8 Cities)	250,000–499,999 (10 Cities)	100,000–249,999 (13 Cities)	<100,000 (4 Cities)
Los Angeles–Long Beach*	San Jose	Tucson	Lexington, KY	Fargo
Chicago	San Francisco	Riverside–San Bernardino*	Stockton	Wilmington, DE
Phoenix–Mesa*	Baltimore	Sacramento	Jersey City	Portland, ME
San Diego	Jacksonville	Fresno	Bakersfield	Charleston, WV
Dallas	Santa Ana–Anaheim (Orange County)*	Oakland	Madison, WI	
	Seattle	Omaha	Mobile	
	Charlotte	Miami	Grand Rapids, MI	
	Cleveland	Pittsburgh	Spokane	
		Toledo	Tacoma	
		Buffalo	Orlando	
			Salt Lake City	
			Providence, RI	
			Columbia, SC	

*Includes the total central city population where there are multiple central cities in an MSA.
Source: Population size based on 1998 census estimates. Population estimates for states, counties, places, and minor civil divisions: Annual time series, July 1, 1990 to July 1, 1999 (includes April 1, 1990 Population Estimates Base).
http://www.census.gov/popest/archives/1990s/SU-99-10.html
http://www.census.gov/popest/archives/1990s/su-99-10/SU-99-10_US.txt

ENDNOTES

1 In a handful of cases, the MSAs in the data set have two or three central cities. These multiple central cities were combined in our data, because we were only interested in locations in central cities relative to suburbs; specific city within the MSA was not important.

2 Dallas at –9.6%, Spokane at –9.5%, and Bakersfield at 10.3%.

3 To test for any multicollinearity, we ran correlation tables for the independent variables, and found one pair of variables—total metropolitan employment and central city population in 1998—with a correlation coefficient of 0.923. Then we ran both models without these variables, as well as running stepwise regressions on each, but there were no substantive change in the results. Further, we ran two auxiliary models in which we regressed each of these two variables with the other independent variables, and though the R^2 in each was fairly high (0.932 and 0.925, respectively), in neither of these did we find variance inflation factors above 3.73, far below

the threshold for concern. We thus concluded that the multicollinearity of these variables had no significant impact on their predicted effects in the models.

REFERENCES

Americans for the Arts (2007a). *Arts & economic prosperity III: The economic impact of nonprofit arts and culture organizations and their audiences*. Washington, DC: Americans for the Arts.

Americans for the Arts (2007b). *Arts & economic prosperity III: The economic impact of nonprofit arts and culture organizations and their audiences in the City of Atlanta, GA*. Atlanta: Americans for the Arts.

Bagwell, S. (2008). Creative clusters and city growth. *Creative Industries Journal*, *1*(1), 31–46.

Brennan, J., & Hill, E. W. (1999). *Where are the jobs? Cities, suburbs, and the competition for employment*. Survey Series. Washington, DC: The Brookings Institution Metropolitan Policy Program.

City of Providence. (2009). *Creative Providence: A cultural plan for the creative sector*. Providence, RI: City of Providence.

Currid, E. (2007). How art and culture happen in New York. *Journal of the American Planning Association*, *73*(4), 454–467.

Currid, E., & Williams, S. (2010a). The geography of buzz: Art, culture and the social milieu in Los Angeles and New York. *Journal of Economic Geography*, *10*(3), 423–451. doi:10.1093/jeg/lbp032

Currid, E., & Williams, S. (2010b). Two cities, five industries: Similarities and differences within and between cultural industries in New York and Los Angeles. *Journal of Planning Education and Research*, *29*(3), 322–335. doi:10.1177/0739456×09358559.

DeVol, R. C., Klowden, K., Bedroussian, A., & Yeo, B. (2009). *North America's high-tech economy: The geography of knowledge-based industries*. Santa Monica, CA: The Milken Institute.

Donegan, M., Drucker, J., Goldstein, H. A., Lowe, N., & Malizia, E. (2008). Which indicators explain metropolitan economic performance best? Traditional or creative class. *Journal of the American Planning Association*, *74*(2), 180–195.

Dreier, P., Mollenkopf, J., & Swanstrom, T. (2004). *Place matters: Metropolitics for the twenty-first century* (2nd Ed., Revised). Lawrence: University Press of Kansas.

Florida, R. (2002). *The rise of the creative class and how it's transforming work, leisure, community and everyday life* (Paperback Ed.). New York, NY: Basic Books.

Florida, R. (2003). Cities and the creative class. *City & Community*, *2*(1), 3–19. doi:10.1111/1540–6040.00034.

Florida, R., Mellander, C., & Stolarick, K. (2009). *That's entertainment: Scale and scope economies in the location and clustering of the entertainment economy*. Toronto: Martin Prosperity Institute.

Garnham, N. (2005). From cultural to creative industries. *International Journal of Cultural Policy*, *11*(1), 15–29.

Glaeser, E. L., & Kahn, M. E. (2001). Decentralized employment and the transformation of the American city [with comments]. *Brookings-Wharton Papers on Urban Affairs*, 1–63.

Glaeser, E. L., Kahn, M., & Chu, C. (2001). *Job sprawl: Employment location in U.S. metropolitan areas*. Survey Series. Washington, DC: The Brookings Institution Metropolitan Policy Program.

Hesmondhalgh, D., & Pratt, A. C. (2005). Cultural industries and cultural policy. *International Journal of Cultural Policy*, *11*(1), 1–13.

Hill, E. W., & Brennan, J. (2005). America's central cities and the location of work. *Journal of the American Planning Association*, *71*(4), 411–432.

Hoyman, M., & Faricy, C. (2009). It takes a village: A test of the creative class, social capital, and human capital theories. *Urban Affairs Review*, *44*(3), 311–333. doi:10.1177/1078087408321496

Hutton, T. A. (2004). The new economy of the inner city. *Cities*, *21*(2), 89–108. doi:10.1016/j.cities.2004.01.002

Hutton, T. A. (2009). Trajectories of the new economy: Regeneration and dislocation in the inner city. *Urban Studies*, *46*(5–6), 987–1001.

Immergluck, D. (2001). The financial services sector and cities: Restructuring, decentralization, and declining urban employment. *Economic Development Quarterly*, *15*(3), 274–288. doi:10.1177/089124240101500308

Keegan, R., Kleiman, N. S., Seigel, B., & Kane, M. (2005). *Creative New York*. New York: Center for an Urban Future.

Kleiman, N. S., Keegan, R., Fischer, D., Gordon, M., Duitch, S., Kane, M., & Zook, K. B. (2001). *The creative engine: How arts & culture is fueling economic growth in New York City neighborhoods*. New York: Center for an Urban Future.

Kneebone, E. (2009). *Job sprawl revisited: The changing geography of metropolitan employment*. Metro economy series. Washington, DC: The Brookings Institution Metropolitan Policy Program.

Markusen, A. (2006). Urban development and the politics of a creative class: Evidence from a study of artists. *Environment and Planning A*, *38*, 1921–1940.

Markusen, A., Wassall, G. H., DeNatale, D., & Cohen, R. (2008). Defining the creative economy: Industry and occupational approaches. *Economic Development Quarterly*, *22*(1), 24–45.

Mieszkowski, P., & Mills, E. S. (1993). The causes of metropolitan suburbanization. *The Journal of Economic Perspectives*, *7*(3), 135–147.

Neff, G. (2005). The changing place of cultural production: The location of social networks in a digital media industry. *The ANNALS of the American Academy of Political and Social Science*, *597*(1), 134–152.

Negrey, C., & Rausch, S. D. (2009). Creativity gaps and gender gaps: Women, men and place in the United States. *Gender, Place & Culture: A Journal of Feminist Geography*, *16*(5), 517–533. doi:10.1080/09663690903148408

Peck, J. (2005). Struggling with the creative class. *International Journal of Urban and Regional Research*, *29*(4), 740–770.

Porter, M. E. (1997). New strategies for inner-city economic development. *Economic Development Quarterly*, *11*, 11–27.

Pratt, A. C. (2000). New media, the new economy and new spaces. *Geoforum*, *31*(4), 425–436. doi:10.1016/s0016–7185(00)00011–7

Raphael, S., & Stoll, M. A. (2010). *Job sprawl and the suburbanization of poverty*. Metro opportunity series. Washington, DC: The Brookings Institution Metropolitan Policy Program.

Rausch, S., & Negrey, C. (2006). Does the creative engine run? A consideration of the effect of creative class on economic strength and growth. *Journal of Urban Affairs*, *28*(5), 473–489.

Reese, L. A., Faist, J. M., & Sands, G. (2010). Measuring the creative class: Do we know it when we see it? *Journal of Urban Affairs*, *32*(3), 345–366. doi:10.1111/j.1467–9906.2010.00496.x

Reese, L. A., & Sands, G. (2008). Creative class and economic prosperity: Old nostrums, better packaging? *Economic Development Quarterly*, *22*(1), 3–7.

Rushton, M. (2006, July). *The creative class and urban economic growth revisited*. Paper presented at the International Conference of the Association for Cultural Economics International, Vienna, Austria.

Rushton, M. (2009). The creative class and economic growth in Atlanta. In D. L. Sjoquist (Ed.), *Past trends and future prospects of the American city: The dynamics of Atlanta* (pp. 163–180). Lanham, MD: Lexington Books.

Sands, G., & Reese, L. A. (2008) Cultivating the creative class: And what about Nanaimo? *Economic Development Quarterly, 22*(1), 8–23.

Scott, A. J. (2006). Creative cities: Conceptual issues and policy questions. *Journal of Urban Affairs*, *28*(1), 1–17.

Scott, A. J. (2008). Production and work in the American metropolis: A macroscopic approach. *The Annals of Regional Science*, *42*(4), 787–805.

Stern, M. J., & Seifert, S. C. (2007). *Cultivating "natural" cultural districts*. Philadelphia: The Reinvestment Fund.

Stern, M. J., & Seifert, S. C. (2010). Cultural clusters: The implications of cultural assets agglomeration for neighborhood revitalization. *Journal of Planning Education and Research*, *29*(3), 262–279. doi:10.1177/0739456x09358555

Storper, M. (2010). Why does a city grow? Specialisation, human capital or institutions? *Urban Studies*, *47*(10), 2027–2050.

Wynn, W. (2011). Creative cities. Available at http://www.willwynn.com/creative-cities/, accessed March 3, 2011.