

**Gentrification and the Artistic Dividend: The Role of the Arts
in Neighborhood Change**

(working paper)

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Problem, research strategy, and findings:

The arts and artists have long been cited as factors contributing to the gentrification of central city neighborhoods and the displacement of lower-income residents. However, more recent literature argues that we not only lack wide-spread evidence of art-based gentrification, but also that the arts are more likely associated with neighborhood revitalization that benefits existing residents. In fact, evidence of either outcome is based primarily on case studies of individual cities or neighborhoods, which makes generalization to multiple contexts difficult. Better knowledge of how the arts interact with neighborhood change is particularly necessary because over the last decade they have become a common and high profile policy target intended to spur development in central cities around the globe. We attempt to address the dearth of comprehensive research and inform neighborhood planning efforts that draw on the arts by statistically testing the relationship of the arts to different facets of urban neighborhood change. We employ NAICS, Census, and American Community Survey data to study how a range of artistic industries and activities are associated with a set of ten dimensions indicative of revitalization and gentrification. We find that different arts activities are associated with different types and levels of neighborhood change. Commercial arts industries show the strongest association with gentrification in rapidly changing areas while the fine arts are associated with stable, slow growth neighborhoods.

Takeaway for practice: By demonstrating that different types of arts activities are associated with different neighborhood conditions, this research can help planners and urban policy-makers to more effectively incorporate the arts into neighborhood planning efforts and to anticipate the potential for gentrification-related displacement.

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Keywords: arts, cultural industries, gentrification, redevelopment, revitalization

Introduction

The arts and artists have long been cited as factors contributing to the gentrification of central city neighborhoods and the displacement of lower-income residents (Ley, 1986; Zukin, 1982). However, more recent literature argues that not only is there a lack of wide-spread evidence of art-based gentrification, but also that the arts are more likely associated with neighborhood revitalization that benefits existing residents (Markusen and Gadwa, 2010; Stern and Seifert, 2010). In fact, evidence of either outcome is based primarily on case studies of individual cities or neighborhoods, which makes generalization difficult. Better knowledge of how the arts interact with neighborhood change is particularly important because over the last decade various arts activities have become common, high profile policy targets intended to spur development in central cities around the globe. Moreover, this question carries import given the recent inauguration of federal planning efforts through the National Endowment for the Arts Our Town program and the public-private project, ArtPlace. Both programs seek to foster “creative placemaking,” which focuses on supporting multisector partners in arts-based revitalization planning (Coletta, 2012; Markusen and Gadwa, 2010; Gadwa Nicodemus, 2013). Though it is too early to evaluate outcomes from either program, even some creative placemaking advocates have called attention to the potential for these programs to serve as catalysts of gentrification if not managed with care (Markusen, 2013).

We attempt to address the dearth of comprehensive research and inform neighborhood planning efforts that draw on the arts by statistically testing the relationship of the arts to urban neighborhood change. Are the arts inextricably linked to the gentrification of urban neighborhoods or are they more closely associated with indicators of neighborhood revitalization? If the arts are a gentrifying force, under what conditions is this most prevalent? To

address these questions we employ NAICS, Census, and American Community Survey data to study how a range of artistic industries are associated with a set of ten dimensions indicative of neighborhood revitalization and gentrification. Our findings reinforce claims that the arts are associated with urban revitalization, but also show that particular types of arts activities are connected to gentrification processes. Whereas fine arts activities (e.g. visual and performing arts companies, fine art schools) are more likely associated with indicators of revitalization, commercial arts industries (e.g. film, music, and design-based industries) are strongly associated with gentrification. Furthermore, while the fine arts tend to be located in stable, slow growth neighborhoods, commercial arts clusters are associated with rapidly changing areas. By illustrating that different types of arts activities are associated with different neighborhood conditions, this paper can help planners and urban policy-makers to more effectively incorporate the arts into neighborhood planning efforts and avoid the potential for gentrification related displacement.

The Relationship between the Arts and Neighborhood Change

The arts and artists are widely credited with sparking neighborhood change resulting in both positive and negative outcomes. Most notably, a long line of research has documented their role in gentrification-- a process of reinvestment in depressed central city neighborhoods marked by a demographic shift toward higher educated and more affluent residents along with rising rents (Deutsche and Ryan, 1984; Ley, 1986; 2003; Mathews, 2010; Zukin, 1982). Others view the gentrification process as a potential vehicle to bring improvements to disadvantaged neighborhoods such as higher property values, lower crime rates, and enhanced neighborhood amenities and services and find that gentrified neighborhoods may not be associated with high residential turnover (Freeman and Braconi, 2004; Papachristos et al., 2011). More often,

however, gentrification is critiqued for causing the displacement and outmigration of long-time residents and small businesses that are not able to remain to enjoy the new improvements that result from neighborhood reinvestment (Newman and Wyly, 2006; Smith, 1979; Zukin, 1982).

While there are many macro-level causes attributed to the gentrification of central city neighborhoods-- suburban sprawl and lengthening commuting times, shifting national demographics, restructured urban economies around advanced services and consumption, and a renewed interest in urban life-- the arts remain a primary localized factor attributed to facilitating neighborhood change. A great deal of case study work demonstrates that individual artists, artistic businesses, and artistic spaces (e.g. small galleries, theaters, music venues, and art studios) function as a “colonizing arm” that helps to create the initial conditions that spark gentrification (Cameron and Coaffee, 2005; Deutsche and Ryan, 1984; Ley, 1986, 2003; Lloyd, 2010; Mathews, 2010; Zukin, 1982). As Zukin (1982) explained decades ago through the concept of an “artistic mode of production,” this is accomplished through the artists’ symbolic appropriation of space, which is in turn seized by investors to attract capital reinvestment in the built environment. In other words, artists are considered to set the stage for change through their cultural capital (Ley, 2003). Using their sweat equity, artists aesthetically revalue place by transforming dilapidated, impoverished and often ethnically segregated areas into a “neo-bohemia” filled with art studios, galleries, bars, coffee shops, and restaurants (Lloyd, 2010; Silver and Clark, 2013; Zukin, 2010). According to this literature, by renovating places mainstream culture considers blighted into attractive destinations, artists pave the way for future property reinvestment by real estate developers and higher income members of the creative class, which appropriate their work for economic gain.

Over time, gentrification has become larger in scale and has spread beyond the global

centers like New York and London (Hackworth and Smith, 2001). One factor driving this trend is that the arts have come to play a more direct role in gentrification as an instrument of urban policy and planning (Cameron and Coafee, 2005). There is a growing body of work, which demonstrates that nonprofit arts institutions and organizations join with more traditional growth regimes to promote downtown development (Grodach, 2012; Ashley, 2014; Strom, 2002). In this regard, local governments have provided substantial funding for the opening and expansion of flagship museums, theaters, and performing arts complexes and planned new districts around them in hopes that they will catalyze future development in and around downtowns and central city neighborhoods (Birch et al., 2013; Grodach, 2010; Johnson, 2009; Strom, 1999, 2002). Public investments in cultural facilities have expanded significantly since the late 1990's following the highly publicized success of the Guggenheim Museum Bilbao, which is attributed with transforming the mid-sized Spanish city into a global destination (Evans, 2003; Grodach, 2011b). Alongside this trend, city officials inspired by Richard Florida's *Rise of the Creative Class* (2002) have invested in smaller-scale arts themed districts as amenities to attract and retain skilled labor and boost property values (Catungal and Leslie, 2009; Grodach, 2013; Johnson, 2009; Ponzini and Rossi, 2012). Many contend that simply incorporating arts facilities and arts districts into urban redevelopment schemes has created privatized bubbles that serve primarily tourists and the upwardly mobile creative class while excluding some residents and even artists themselves (Catungal and Leslie, 2009; Eisinger 2000; Grodach, 2009; Peck, 2005).

Cities also concentrate on commercial arts industries-- notably film, music, and design-based sectors-- in their local economic development planning programs. As economic geography and planning scholars demonstrate, arts industries have a high propensity to cluster in urban areas to take advantage of and capitalize on concentrations of specialized labor and services

often forming “innovation districts” along with related industries in media, finance, and high technology (Currid and Williams, 2010; Grodach et al., 2014; Scott, 2006). Their presence can also result in the gentrification of urban areas as artistic businesses and arts industry workers-- both artists and support staff-- seek out proximate locations and bid rents upward. Further, as studies by Catungal and Leslie (2009) and Grodach (2012, 2013) show, coalitions of city officials and development interests specifically target arts industries to generate place-based redevelopment. Toronto, for example, has invested heavily in new film studios and design industries to stimulate development on the waterfront and central city areas while Austin, TX invests in their music industry as a component of new downtown building projects.

Another stream of research concentrates more specifically on the arts as assets in neighborhood revitalization without gentrification (Grodach, 2011a; Jackson et al., 2006; Markusen and Gadwa, 2010; Stern and Seifert, 2010). Ann Markusen has been one of the most active researchers to conceptualize and document the development contribution of the arts (Markusen and Schrock, 2006; Markusen and Gadwa, 2010). Her work stresses the importance of an “artistic dividend”-- the value added to local and regional economies through artistic work. Beyond simply attracting a creative class workforce, artists and art groups may generate economic gain through export of their work, by supplying skills that improve the productivity of nonartistic industries, or by attracting visitors to specific neighborhoods. Because artistic networks tend to be concentrated and rooted in place, these benefits tend to spill-over into the immediate area leading to neighborhood improvements. While Markusen and Schrock (2006) concentrate on arts occupations in their study, artists, arts organization, and arts industries can all contribute to an “artistic dividend.”

While much of this work recognizes that these benefits can also create conditions for

gentrification, some scholars argue that most places do not experience the high levels of property appreciation and demand for central city space that drives the gentrification process (Ryberg, 2012; Stern and Seifert, 2010). For example, in their study of Philadelphia, Stern and Seifert (2010) found that neighborhoods with higher levels of neighborhood arts activity were more likely than others to experience indicators of revitalization such as increased population density, higher housing values, employment growth, and declining poverty rates. Further, they and others show that places, including lower income neighborhoods, which are home to a diversity of arts offerings remained stable rather than experiencing a dramatic upscaling (Grams and Warr, 2003; Stern and Seifert, 2007). Supporting this research, case studies of artists and community art spaces provide evidence that they often work with neighborhood groups to foster change without noticeably high levels of neighborhood turnover (Grodach, 2011a; Markusen and Johnson, 2004; Stern and Seifert, 2007). In addition to these findings, Silver and Miller (2013) find a strong association between neighborhoods with a strong artistic presence and rising local wages and median incomes while Noonan (2013) finds that cultural districts have a modest but positive effect on property values, employment, and income.

In sum, a sizable literature has established that the arts can play a key role in altering conditions in central business districts and urban neighborhoods, but there is debate over which attributes of neighborhood change they are most closely associated with. Some consider an artistic presence as a catalyst for central city improvement that largely benefits elites. Others claim that the arts spur neighborhood revitalization to the benefit of existing residents. Both streams of literature, however, are highly contextual. There are many rich case studies of neighborhoods and some that focus on how the arts influence neighborhood change in particular cities. With few exceptions (Silver and Miller, 2013; Noonan, 2013), however, have researchers

identified the generalized patterns of how the arts affect or are associated with attributes of neighborhood change. Additionally, the case study literature on the arts and gentrification typically does not differentiate between types of arts activity, but focuses more generally on an artistic presence. This is an important issue to address because “the arts” encompass a very diverse set of activities and “artists” work in a wide range of fields from film, design, and other commercial industries to nonprofit dance companies, symphonies, museums, and art schools. A more nuanced understanding of the relationships different types of arts activities have with gentrification will help planners and policy-makers to better target the arts in their redevelopment programs and avoid the potential for displacement. Particularly given the heightened attention to “creative placemaking” and related planning efforts, studying the conditions and characteristics of arts-led gentrification and revitalization is timely and important to address.

Analytic Strategy: Modeling the Relationship of the Arts to Neighborhood Change

Unit of Analysis

To determine how the arts are associated with neighborhood change we study the relationships between arts industries and a set of variables commonly discussed in the literature as indicative of gentrification and neighborhood revitalization over the decade of the 2000s. We focus on all US metropolitan statistical areas (MSA) with a population of 500,000 or greater in 2010. To approximate neighborhoods we rely on the zip code as the unit of analysis.¹ While not a perfect means of capturing neighborhoods, zip codes are the most consistent geography at which the Census reports business patterns data at the micro-level and so give us an approximation of neighborhood-level change. Because the literature typically considers gentrification as an urban phenomenon, we study neighborhoods within 10 miles of any central

business district (CBD) in each metro. Our decision to use a 10 mile radius is based on two factors. First, the literature emphasizes the urban character of gentrification and that neighborhoods farther from the CBD are less likely to gentrify. In fact, although our preliminary analysis included zip codes beyond 10 miles from a CBD, this broader geography produced a weaker model, supporting research that suggests gentrification is a distinctly urban phenomenon. Second, we also recognize that regions have varied histories, phases, and character of development. Limiting the sample to zip codes 5 miles or less from a CBD may exclude important areas from the analysis. Therefore, the 10 mile radius is meant to capture potential sites of gentrification in the varying geographies of US MSAs. To define CBD locations, we use the 1980 Census of the Population Master Area Reference File 2 (MARF 2) available from the Inter-university Consortium for Political and Social Research (ICPSR). Although 1980 precedes the study period, we rely on this data because it is the most recent release that contains CBD coordinates. Our sample of 4,266 zip codes contains 100 out of the 101 MSAs with a population of 500,000 or above that existed in 2010.² Once we obtained the CBD coordinates, we identified coordinates (internal points) for all 2010 zip codes from the 2010 Zip Code Tabulation Area (ZCTA) Gazetteer file. We then used the vincenty STATA program to calculate the distance between each zip code and each CBD.

Zip code boundaries are not constant through time, but change along with the neighborhoods they represent. To ensure that all data we use approximates the same geographic area over time we adjust all data from 2000 to match 2010 ZCTA geographic boundaries. To do so, we first obtain the tiger/line shape files of 2010 and 2000 ZCTAs from the Census Bureau. Next, we intersect these two files using ArcGIS and weighted 2000 data based on the land area overlap with the 2010 ZCTAs.³ In instances where more than one 2000 ZCTA overlaps with a

single 2010 ZCTA, the sum of the weighted 2000 ZCTA data is calculated and used to approximate the neighborhood captured by the 2010 ZCTA. Finally, cases where data from 2000 is 0 and data from 2010 is non-zero or data from 2010 is 0 and data from 2000 is non-zero are not included in our final sample. This avoids the occurrence of potentially invalid calculations in the growth variables described below.

Dependent Variables

To measure the dependent variables of neighborhood change (gentrification and neighborhood revitalization) we use zip code data from the 2000 Census and the 2007-2011 American Communities Survey (ACS).⁴ We measure urban revitalization and gentrification based on a set of ten variables previously employed in the literature (Freeman, 2005; Ley, 1986; Sands and Reese, 2012). These include the growth rate in average household income, proportion of the employed population, proportion of the population not in poverty, the proportion of households not receiving public assistance, the proportion of the population 25 years of age and older with a bachelor's degree or higher, the proportion of the White population, residents in management occupations, mean housing value, and population density. We also include the proportion of homeowners that moved to a neighborhood in 2005 or later.

Gentrification and revitalization are complex processes that vary in terms of the pace, scope, and scale depending on the local context and the time period under study (Hackworth and Smith; Mathews, 2010). Therefore, we do not attempt to subjectively assign the variables under specific categories. Rather, we statistically identify groups of related variables indicative of neighborhood change through a principal component factor analysis with a normalized varimax rotation. This approach attempts to deal with the challenge of operationalizing the terms revitalization and gentrification and allows for the possibility that gentrification and

revitalization may exhibit some similar or overlapping features. In other words, we anticipate that the factor analysis will produce categories that reflect urban revitalization, as well as indications of potential displacement.

The factor analysis produced three factors that capture different dimensions of neighborhood revitalization and gentrification discussed in the literature. We label these factors Neighborhood Revitalization, Neighborhood Upscaling, and Neighborhood Build-out (Table 1). Together these three factors explain 53% of the variation in the variables. The primary variables that contribute to the Neighborhood Revitalization factor are growth in income, employment rates, housing values, and the proportion of residents not living in poverty. This factor incorporates indicators of neighborhood improvement without clear warning signs of displacement and most closely reflects the findings of Stern and Seifert (2010) in their study of the arts and revitalization. The other factors, which we label gentrification factors, consist of variables denoting neighborhood improvement alongside signs of neighborhood instability. Neighborhood Upscaling describes places where there is a growing rate of employed residents and a declining proportion of residents on public assistance along with a growing White population, highly educated residents, and residents in management occupations. Neighborhood Build-out represents neighborhoods that are becoming denser, have an increasing proportion of new homeowners, and contain an increasing proportion of residents in management and those with high levels of income and education. In short, the Neighborhood Revitalization factor is distinct from the other two because there are no entry signs of a gentrifying population (namely an educated, white professional population) while the other factors include these. However, given the available data, our factors cannot directly capture an important component of gentrification-- the displacement of existing, lower-income residents and their replacement by

upwardly mobile professionals. What we study are variables indicative of *potential* displacement. Our study, therefore, is a better reflection of change in the status of places than changes in specific populations. To be clear, we are not able to clearly identify in and outflows of residents to account for displacement, which is a limitation we hope will be addressed in future work. What we can study are factors indicative of these concepts and determine statistically how the arts are related to each of these factors.

Table 1 HERE

Independent and Control Variables

Our primary independent variables consist of two different arts clusters, which we define based on prior empirical research as well as theoretical considerations. Each cluster is a composite of arts industry employment per capita because we specifically want to model the concentration of neighborhood employment in the arts. The commercial arts cluster consists of people employed in commercial arts sectors including film, music, and design industries. The fine arts cluster consists of employment in sectors that tend to be a blend of for profit and nonprofit visual and performing arts activity alongside museums, art galleries, and fine arts schools (Table 2). All industries are classified by the North American Industrial Classification System (NAICS) in the zip code business pattern (ZBP) dataset provided by the US Census Bureau. Our arts industry measures come from the year 2000 data file.

There are arguments both for and against the use of industry data to study the arts. Those who focus on artistic occupations point to two weaknesses of studying industries (Markusen et al., 2008). First, industry data does not include self-employed workers, which is an important portion of the arts workforce. Second, arts industry employment data include those who do not work in the arts so the data are not an actual count of artists. We agree with this assessment, but

argue that any artistic production involves more than the artists themselves and that the nonartistic staff that contribute to an artistic business are a necessary component for the arts to flourish (Becker, 1982). The ideal approach would be to look at arts industries and occupations simultaneously, however, industry data is the only consistent source of data on employment in the arts across all US metros over an extended period of time at the micro level. Moreover, the NAICS dataset captures both the fine and commercial arts discussed in the literature (e.g. museums, performing arts centers, art galleries and film and design industries) as well as independent artists (NAICS 711510). Admittedly, this is not an ideal representation of individual artists given that they infrequently support themselves with their artwork alone (and, as a result, many are not counted in occupational data as well). The NAICS data do capture artists indirectly through their employment in arts industries. For these reasons, we feel the data adequately models different forms of artistic presence and hope to improve representation as better data becomes available.

Alongside the arts variables we employ a range of social, economic, and housing variables taken from the 2000 Census as well as per capita employment in consumer amenities (e.g. bars, coffee shops, markets, and restaurants), drawn from the ZBP, to control for potential differences in neighborhood context. In this way, we can determine the extent to which the arts affect neighborhood change independent of differences in the initial status of a neighborhood at the beginning of the study period in terms of variables like average income, level of education, or average age, all of which may have an influence on revitalization and gentrification outcomes (see Appendix for complete list of variables).⁵

Table 2 HERE

Regression Models

To estimate the relationship of the arts clusters to gentrification and revitalization we specify linear regression models using neighborhood revitalization, neighborhood upscaling, and neighborhood build-out as dependent variables. Each model takes the form:

$$\mathbf{y} = \mathbf{X}\boldsymbol{\beta} + \mathbf{D}\boldsymbol{\gamma} + \boldsymbol{\varepsilon}$$

where \mathbf{y} is a vector ($n \times 1$) of observations of the dependent variable (revitalization or the gentrification factors); \mathbf{X} is a matrix ($n \times p$) of observations of the independent variables (the arts clusters and control variables); $\boldsymbol{\beta}$ is a vector ($p \times 1$) of regression coefficients; \mathbf{D} is a matrix ($n \times j$) of MSA dummy variables taking on a value of 1 when the zip code is nested in the MSA and 0 otherwise; $\boldsymbol{\gamma}$ is a vector ($j \times 1$) of regression coefficients for each of the MSA dummy variables; and $\boldsymbol{\varepsilon}$ is a vector ($n \times 1$) of random error terms. The MSA fixed effects, are not reported in the results, but are rather meant to absorb any contextual effects that may impact results. Our sample includes MSAs in multiple regions of the country that have likely experienced growth and gentrification differently. An example is the massive growth Sunbelt MSAs have experienced in contrast with many metros in the Rustbelt. The MSA fixed effects account for differences in MSA context by controlling for the effect of being in any given MSA in the sample. An f-test of the significance of the MSA fixed effects as a group is provided in all regression output. All results are obtained using ordinary least squares (OLS).

We first run the regression model on the entire data set to get a sense of the relationships of the arts to neighborhood change. Next, because neighborhoods that experience different levels of change may have varying associations with arts activity, we employ quintile regression. This

approach divides our dependent variable into five levels of change. This is in contrast to other studies of gentrification, which define neighborhoods as either gentrifying or not gentrifying irrespective of the pace of change (Freeman and Braconi, 2004; Ley, 1986; Newman and Wiley, 2006). We feel that this approach better models the potential revitalization and gentrification scenarios and enables us to determine how the arts are associated with different levels of change. This approach is also useful in situations where the data is skewed as we find in studies of gentrification.

Prior to running regression models, we first examine the relationship of the dependent variables to the arts clusters with scatter plots. This gives us a first cut of the relationships we are modeling (excluding controls) and helps to identify any significant outliers that may disproportionately influence results. We are especially concerned with outliers in this analysis because we know from abundant research that gentrifying neighborhoods comprise a small proportion of all neighborhoods in a region and that arts clusters are highly concentrated. In other words, we anticipate that both dependent and experimental variables may be unevenly distributed. To address this, we reproduce all scatter plots with and without outliers and examine the differences.⁶ In each case, the removal of outliers causes the slope of the fitted line to increase. Moreover, the slope of the fitted line remains statistically significant at the 99% confidence level with the exception of the scatter plot depicting commercial arts and neighborhood upscaling without outliers, which is significant at the 95% confidence level. The evidence suggests that extreme outliers impact results by *reducing* the power of the relationships. Outliers, therefore, are not driving the relationships or causing a relationship to appear when it does not otherwise exist.

We also check for the potential of multicollinearity among our exogenous variables by examining each variable's variance inflation factor (VIF) as well as the VIF overall. Based on this we remove some of our initial control variables (See Appendix). However, the VIFs indicate the effects of these variables are well represented by the other controls in the model. In our final model, none of the exogenous controls have a VIF above 5 and the overall VIF is 2.8.⁷

Findings

Full Model

Our results indicate that the arts are not a homogenous group. Rather, different arts activities exhibit distinct relationships with different types of neighborhood change. In the full model (Table 3), the adjusted R2 for each of the neighborhood change variables ranges from .36 to .46, which is modest but certainly not inconsequential given the range of potential factors that can influence neighborhood change. Indeed, while some control variables exhibit stronger relationships to the neighborhood change factors, both arts clusters hold up as important variables under specific conditions. The commercial arts cluster has a significant association with both of the gentrification factors, but shows no relationship to neighborhood revitalization. Conversely, the fine arts cluster displays a positive association with neighborhood revitalization, but correlates negatively with gentrifying neighborhoods.

The commercial arts cluster exhibits by far the strongest association with the gentrification factor, neighborhood build-out, defined by neighborhoods that are becoming denser, experiencing rising homeownership rates, and contain an increasing proportion of upwardly mobile residents. Looking at the control variables, it makes sense that this form of gentrification is associated with neighborhoods that have a positive association for Whites, a young adult population, low rates of public assistance, and the presence of amenities at the start

of the study period. Further, this form of gentrification is negatively related to areas where an employed and highly educated population already exists. We may infer from these condition that, prior to the study period, gentrification processes have likely been under way to some extent and that commercial arts clusters are not only attracted to such neighborhoods, but also may be associated with their gentrification and development.

Commercial arts clusters also display positive but weaker associations with the other gentrification factor, neighborhood upscaling, where neighborhoods experience increasing employment, an influx of educated residents, Whites, and a declining proportion of residents on public assistance. These neighborhoods reflect considerably different associations with the control variables. This form of gentrification is strongly associated with neighborhoods that begin the study period with major challenges in that the proportion of employed residents and those not on public assistance show a strong negative relationship as does, to a lesser extent, the average rent variable. They do begin the study period with mixed indicators of gentrification through a negative association with amenities and young adults, but a weak positive relationship with median housing values and a White population.

In contrast, fine arts have a weak but positive association with revitalization, characterized by neighborhoods experiencing growing income levels, employment, housing values, and residents living above the poverty line. These neighborhoods resemble the neighborhood upscaling controls at the beginning of the study period with three notable exceptions-- they are marked by the presence of highly educated individuals and fewer people on public assistance, yet lower home values. This mix of educated residents and signs of poverty resembles Stern and Seifert's (2010) "pov-prof" neighborhoods, where they find strong associations with artistic activity.

In sum, the results seem to demonstrate that different types of arts activity are associated with different types of neighborhood change. The findings lend support to claims of the power of the arts to revitalize central city neighborhoods, but also clarify their role in gentrification processes, revealing a link between the commercial cultural industries and gentrification but not with the fine arts. In other words, different types of arts activity work differently on neighborhood change and emanate from different initial neighborhood conditions. Next, we turn to examining the relationships based on the level of neighborhood change.

Table 3 HERE

Quintile Regressions

Quintile regressions allow us to study results based on the level of change in a neighborhood. In this regard, the quintile regression results in Tables 4-6 and Figure 1 provide additional insights into the relationships between the arts and neighborhood change. The tables present results for each neighborhood change factor based on five levels of growth or change organized from slowest to highest level of change. Here, the explanatory power for the top quintile (81-100%) in each of the models is stronger than in the full model and is by far the most robust quintile for both of the gentrification models at .59 and .53 for neighborhood upscaling and neighborhood build-out respectively. Further, with the exception of the adjusted R2s for the slowest growth quintile (0-20%), the other quintiles of neighborhood change possess virtually no relationship in each of the three models. Therefore, much of what we capture in the full model above actually may be a reflection of neighborhoods undergoing the most significant change over the study period and, to a lesser extent, those that have undergone very little change.

In each of the models, we continue to see that the two arts clusters exhibit opposing associations with all types of neighborhood change and at all rates of change where the variables are significant (Fig. 1). The fine arts retain their negative association to rapidly gentrifying

neighborhoods (Tables 5 and 6), but in contrast to the full regression model, also exhibit a negative relationship to areas with the highest rates of neighborhood revitalization (Table 4). Rather, their modest association with this measure of neighborhood change occurs only in fairly stable neighborhoods where revitalization processes are at their slowest. These neighborhoods are defined by a Hispanic population, educated residents, above average population density, White residents, and above average rent and tend to have fewer young adults and amenities, lower housing values, and a smaller foreign-born population.

For the commercial arts cluster, the associations with the gentrification factors are strongest and significant in the areas experiencing the highest levels of change (Tables 5 and 6 and Fig. 1). Further, in contrast to the full model, this arts cluster also displays a strong link to the revitalization factor in high growth areas. In fact, the commercial arts cluster maintains a strong relationship to high growth neighborhoods across all three neighborhood change factors. The link with neighborhood upscaling dramatically increases from the full model and there is a notable increase in the relationship with neighborhood build-out as well. With the exception of the 4th quintile (61-80%) in neighborhood build-out, there is no positive association between this arts cluster and slower levels of gentrification. The commercial arts cluster also shows a strong negative relationship where the fine arts are present-- namely in slow growth revitalization neighborhoods-- and is insignificant to slow growth areas in the gentrification models (Fig. 1).

All high growth neighborhoods where commercial arts clusters are common are defined by low levels of employment and low levels of highly educated residents at the start of the study period. Neighborhoods with the most pronounced levels of neighborhood upscaling, however, do show some signs of gentrification. These neighborhoods contain amenities, an above average White population, and above average housing values, but also high levels of public assistance,

low rent, and above average vacancy rates indicating further room for development. Neighborhoods exhibiting high rates of build-out are similarly defined by mixed signs of gentrification. In addition to a strong association with commercial arts industries and the negative associations with employment and high education, these neighborhoods exhibit reasonably strong associations with amenities, housing values, White and foreign-born populations, young adults, and larger households, but also lower rent, public assistance, and vacant units. In other words, commercial arts clusters are associated with areas with incipient gentrification, which rapidly develops over the study period.

Tables 4-6 and Figure 1 HERE

Discussion and Conclusions

This study set out to test the relationships of two different types of arts clusters—the fine arts and commercial arts clusters—to conditions indicative of revitalization and gentrification. In this regard, we employ a novel means of capturing neighborhood change: factor analysis. Based on the factor analysis of variables commonly associated with urban growth, we identify factors representative of neighborhood revitalization and two different manifestations of gentrification. In this way, we have begun to discern how different types of arts activity are associated with different types of neighborhood change by looking for common patterns across a range of places. Our research both extends the existing literature on the relationships of the arts to neighborhood change and provides important knowledge for planners working with the arts in city planning agencies, community-based organizations, and local and national cultural affairs offices.

The results of our regression analyses point to two important findings. First, the fine arts and commercial arts clusters exhibit different associations with neighborhood change. The fine

arts are more likely associated with indicators of revitalization, while commercial arts are aligned with gentrification, both in the form of neighborhood upscaling and neighborhood build-out. Second, the arts clusters vary in their association with the level of change that occurs in a neighborhood. The fine arts are found in stable neighborhoods with low levels of revitalization as opposed to gentrifying neighborhoods. In contrast, commercial arts clusters are most strongly linked to neighborhoods enduring high levels of gentrification and revitalization alike. In other words, when studying how the arts are related to place-based change or planning for arts-based redevelopment, scholars and planners cannot think of the arts as a uniform group with equivalent impacts under the same conditions as is often assumed.

While this study provides support for arguments of arts-led gentrification, it clarifies the type of arts activity, namely commercial arts industries, that are implicated in the process. In contrast, the fine arts show a relationship, albeit weak, to revitalization and neighborhood stability, which provides some support for the arts-based revitalization argument. Taken another way, the commercial arts sectors are strongly associated with neighborhood growth, while performing arts companies, museums, and fine arts schools are associated with places that experience slow and steady improvement. In short, while urban planners and policy pundits often talk broadly about the arts and their impact on neighborhood change, this study shows that we need to better distinguish between arts activities when specifying the relationship to neighborhood change and should consider the pace of change in a neighborhood as well. In so doing, this research can do more than help planners to improve how they define and approach the arts in neighborhood planning efforts. With this knowledge, planners are better prepared to anticipate the possible outcomes of their decisions. Planners can and should strategically take account of the consequences of advancing different forms of arts-based development and the

contexts in which different interventions are likely to be successful. The research can also help planners to broaden their current arts-based planning and redevelopment strategies. Currently, the most common approach is to invest in the arts, both in the form of large-scale cultural facilities and smaller-scale arts districts, as amenities to attract upscale development to central city areas. Our results show that this is not the only option and, further, that such investments may not attract gentrifying populations. Finally, an understanding of how different arts activities relate to varying neighborhood contexts also equips planners with knowledge to develop informed and targeted strategies to mitigate potential displacement both in planned redevelopment projects and in their interventions in gentrifying areas.

In sum, this study provides a complement to case study research on the relationship of the arts to neighborhood change and can provide new insights for gentrification research at large. While many of the case studies do not distinguish types of arts activities, but focus more on an artistic presence or an apparent artistic presence, our study uncovers generalizable patterns across many metros. Additionally, the case studies tend not to measure the association between the arts and place change in a rigorous fashion. Our research statistically tests competing theories on the relationship between the arts and development and differentiates between arts clusters. While neither the qualitative work nor ours pinpoints the precise causal mechanisms at play, we believe that this work provides another lens to the study of arts-related gentrification and gentrification processes at large that cannot be accomplished through individual case studies.

Building off of this work, we need further research that helps to explain why the patterns we find exist. Are the fine arts groups unrelated to gentrifying areas because they cannot afford such neighborhoods or are they displaced in the gentrification process? Or, alternatively, are these arts groups not widely attracted to such areas? Why are the commercial arts sectors

attracted to and in what ways do they catalyze change in rapidly gentrifying areas? Another issue concerns displacement. To what extent are residents actually displaced from gentrifying arts neighborhoods and in what ways do they benefit, if at all? While we were not able to directly measure displacement associated with gentrification, our factor analysis does allow us to see how variables group together in ways that are likely to indicate displacement through gentrification.

We also need to further research the role of arts clusters in different contexts of growth and gentrification. Our model does not examine whether or not the relationship of the fine arts and commercial arts to growth and gentrification remains constant regardless of the level of arts employment. Is there a certain level of arts employment that is required before benefits materialize? Moreover, while we attempt to control for specific neighborhood and MSA contexts and our quintile approach looks at different levels of gentrification and growth, additional research can specifically examine how context changes the relationships observed. Are there local and regional differences that impact the viability of arts-led development?

In closing, our approach and findings have important implications for planners and city officials interested in incorporating the arts into their local revitalization programs and in moving forward with the “creative placemaking” agenda initiated by the National Endowment for the Arts and ArtPlace. While the results point toward commercial arts industries as neighborhood growth catalysts, they also indicate a strong potential to contribute to displacement. This means that while cities may want to pay more attention to these sectors in their redevelopment programs, they must also pay close attention to the availability of affordable housing and other mechanisms that mitigate the displacement of long-time residents and small businesses. Similarly, cities should not underestimate the potential stabilizing force of the fine arts, which may in fact be preferable to rapid growth and change in many communities.

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Appendix: Regression Control Variables

Census Variables ^a		Amenities Composite Variables ^b	
Variable	Description	NAICS	Industry
20 to 34 years old	Percent of residents 20 to 34 years old	311811	Retail Bakeries
White	Percent of white residents	445110	Supermarkets
Population Density	Persons per square mile	445120	Convenience Stores
Employment	Percent of residents in civilian workforce	445210	Meat Markets
Avg HH Income*	Average household income	445220	Fish and Seafood Markets
Bachelor's Degree or Higher	Percent of residents with Bachelor's or higher degrees	445230	Fruit and Vegetable Markets
Manager*	Percent residents with management occupation	445291	Baked Goods Stores
Mean Housing Value	Mean Housing Value	445292	Confectionary and Nut Stores
Not Receiving Public Asst.	Percent of residents not receiving public assistance	448110	Men's Clothing Stores
Not in Poverty*	Percent of residents not in poverty	448120	Women's Clothing Stores
Black*	Percent of black residents	448130	Children's and Infants' Clothing Stores
Hispanic	Percent of Hispanic residents	448140	Family Clothing Stores
Foreign	Percent of foreign-born residents	448150	Clothing Accessory Stores
Average Household Size	Average household size	448190	Other Clothing Stores
Average Rent	Average rent	448210	Shoe Stores
Vacant Units	Percent of vacant housing units	448310	Jewelry Stores
Walk to Work	Percent of employed residents who walk to work	448320	Luggage and Leather Goods Stores
Fixed Effects	Absorbs metro-level effects	451211	Book Stores
		451212	News Dealers
		452110	Department Stores
		453110	Florists
		722210	Full-Service Restaurants
		722213	Snack and Nonalcoholic Beverage Bars
		722410	Drinking Places (Alcoholic Beverages)
		812191	Diet and Weight Reducing Centers
		812199	Other Personal Care Services

Sources: ^a2000 US Census Bureau; ^b2000 US Census Bureau, North American Industrial Classification System;

*Variable dropped from final regression models due to VIF score>5.0

Table 1. Factor Analysis Results

Variables	Neighborhood Revitalization	Neighborhood Upscaling	Neighborhood Build-out
Employment Growth	0.3709	0.4106	
Household Income Growth	0.7191		0.4145
Above Poverty Growth	0.7423		
Not Receiving Public Asst. Growth		0.7268	
Bachelor's Degree or Higher Growth		0.5726	0.3628
White Growth		0.6529	
Manager Growth		0.4257	0.5175
Housing Value Growth	0.6842		
New Homeowners Since 2005			0.7092
Density Growth			0.6353
Variance Explained	19%	18%	16%

Table 2. Arts Cluster Industries

Commercial Arts Cluster		Fine Arts Cluster	
NAICS	Industry	NAICS	Industry
512110	Motion Picture and Video Production	453920	Art Dealers
512191	Teleproduction and Postproduction Services	611610	Fine Arts Schools
512199	Other Motion Picture and Video Industries	711110	Theater Companies and Dinner Theaters
512210	Record Production	711120	Dance Companies
512220	Integrated Record Production/Distribution	711130	Musical Groups and Artists
512230	Music Publishers	711190	Other Performing Arts Companies
512240	Sound Recording Studios	711510	Independent Artists, Writers, & Performers
541310	Architectural Services	712110	Museums
541320	Landscape Architectural Services		
541410	Interior Design Services		
541420	Industrial Design Services		
541430	Graphic Design Services		
541490	Other Specialized Design Services		
541922	Commercial Photography		

Source: 2010 US Census Bureau, North American Industrial Classification System

Table 3. OLS Regression Results: The Relationship between the Arts and Neighborhood Change

Variables	Revitalization	Upscaling	Build-out
Commercial Arts Cluster	0.014	0.092***	0.404***
Fine Arts Cluster	0.050***	-0.024*	-0.055***
Amenities	-0.036***	-0.109***	0.167***
20 to 34 years old	-0.073***	-0.106***	0.184***
White	0.116***	0.194***	0.133***
Population Density	0.092***	0.024	-0.048***
Employment	-0.230***	-0.368***	-0.090***
Bachelor's Degree or Higher	0.292***	0.025	-0.090***
Mean Housing Value	-0.210***	0.110***	0.092***
Not Receiving Public Assistance	0.157***	-0.440***	0.188***
Hispanic	0.151***	-0.050**	-0.099***
Foreign	-0.073***	0.097***	0.084***
Average Household Size	-0.096***	0.049**	0.026
Average Rent	-0.070***	-0.130***	-0.022
Vacant Units	0.009	0.008	0.104***
Walk to Work	0.002	0.075***	0.082***
Fixed Effects F(99, 4168)	16.263***	3.971***	3.423***
R^2	0.380	0.480	0.440
AdjustedR2	0.360	0.460	0.430
N	4,284	4,284	4,284

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 4. Quintile Regression Results: Neighborhood Revitalization

Variables	1-20%	21-40%	41-60%	61-80%	81-100%
Commercial Arts Cluster	-0.476***	0.009	0.013	-0.011	0.190*
Fine Arts Cluster	0.065**	0.018	-0.068	0.050	-0.142***
Amenities	-0.088***	-0.009	0.033	-0.020	0.074
20 to 34 years old	-0.216***	0.024	0.021	0.053	-0.005
White	0.108**	0.199***	0.115	0.146**	0.005
Population Density	0.123***	-0.023	-0.066	0.067	-0.040
Employment	-0.089	-0.082	-0.139*	-0.093	-0.436***
Bachelor's Degree or Higher	0.196***	0.292***	0.124*	-0.015	-0.121**
Mean Housing Value	-0.168***	-0.177**	-0.031	0.026	-0.012
Not Receiving Public Asst.	0.095	-0.057	0.132*	-0.013	0.050
Hispanic	0.225***	-0.101	-0.033	-0.061	0.021
Foreign	-0.166***	0.040	0.044	0.127*	0.038
Average Household Size	-0.098**	0.178***	0.035	-0.017	-0.172***
Average Rent	0.114*	-0.035	-0.108	-0.039	0.137***
Vacant Units	-0.068*	0.044	0.058	0.046	0.041
Walk to Work	-0.070*	0.007	0.005	-0.054	0.104**
Fixed Effects	6.393*** F(89, 751)	1.465*** F(91, 749)	1.778*** F(90, 750)	1.177 F(81, 759)	2.006*** F(80, 759)
R^2	0.650	0.170	0.200	0.130	0.470
AdjustedR2	0.600	0.050	0.090	0.020	0.400
N	857	857	857	857	856

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 5. Quintile Regression Results: Neighborhood Upscaling

Variables	1-20%	21-40%	41-60%	61-80%	81-100%
Commercial Arts Cluster	-0.103	0.068	0.072	-0.035	0.540***
Fine Arts Cluster	-0.034	-0.077*	-0.020	-0.058	-0.250***
Amenities	-0.173***	-0.039	-0.015	0.085*	0.085***
20 to 34 years old	-0.148***	-0.069	0.010	-0.004	-0.061*
White	0.168***	0.106	-0.032	-0.070	0.084**
Population Density	0.041	-0.067	0.000	0.060	0.032
Employment	-0.195***	0.040	-0.061	-0.022	-0.192***
Bachelor's Degree or Higher	0.001	-0.130*	-0.023	-0.052	-0.036
Mean Housing Value	0.040	0.209**	0.099	0.142*	0.175***
Not Receiving Public Asst.	0.002	-0.117	0.069	-0.121*	-0.369***
Hispanic	0.022	0.091	-0.068	0.085	-0.156***
Foreign	0.023	0.013	0.060	0.102	0.065
Average Household Size	-0.251***	-0.120**	0.061	0.064	0.174***
Average Rent	0.058	0.050	-0.219***	-0.080	-0.195***
Vacant Units	-0.251***	-0.026	0.036	0.123***	0.113***
Walk to Work	-0.044	0.057	0.002	0.045	0.030
Fixed Effects	1.764*** F(93, 747)	1.224* F(98, 742)	1.053 F(95, 745)	0.895 F(96, 744)	2.441*** F(87, 752)
R^2	0.310	0.160	0.140	0.240	0.640
AdjustedR2	0.210	0.030	0.010	0.130	0.590
N	857	857	857	857	856

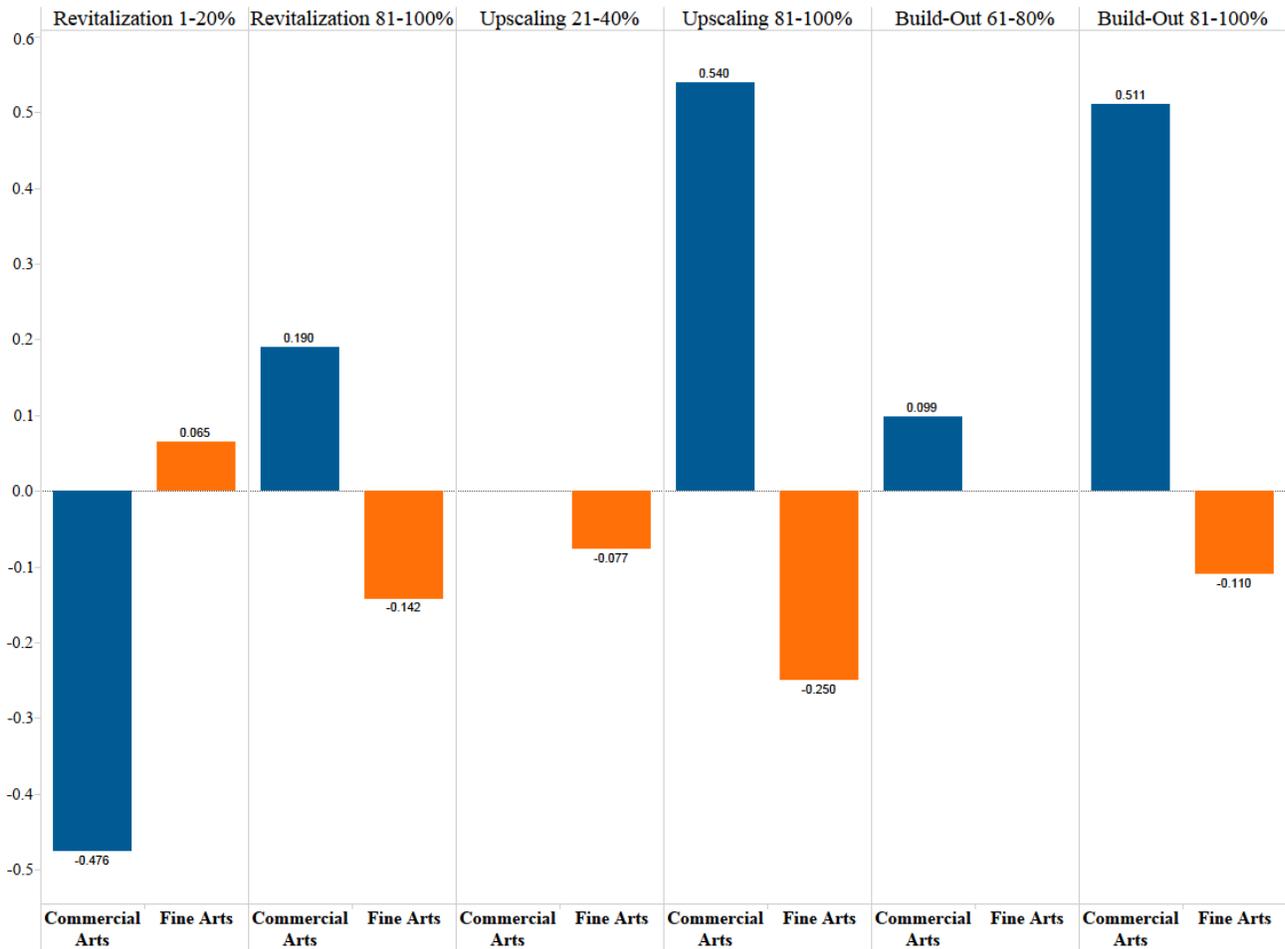
* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 6. Quintile Regression Results: Neighborhood Build-Out

Variables	1-20%	21-40%	41-60%	61-80%	81-100%
Commercial Arts Cluster	0.000	0.069	-0.020	0.099**	0.511***
Fine Arts Cluster	-0.061	-0.060	0.010	-0.040	-0.110***
Amenities	-0.096**	-0.055	0.047	0.021	0.196***
20 to 34 years old	0.148***	0.085	0.138***	0.130**	0.151***
White	0.041	0.008	0.091	0.078	0.158***
Population Density	0.087*	0.078	0.059	-0.024	-0.136***
Employment	0.131*	0.207***	-0.10	0.053	-0.078**
Bachelor's Degree or Higher	0.035	0.040	-0.002	0.035	-0.134**
Mean Housing Value	-0.120*	-0.060	-0.059	0.063	0.200***
Not Receiving Public Asst.	0.425***	-0.039	0.013	-0.105	-0.115**
Hispanic	0.170**	0.104	0.040	0.014	-0.279***
Foreign	0.016	-0.061	-0.112	-0.019	0.282***
Average Household Size	-0.235***	-0.125**	-0.023	0.040	0.280***
Average Rent	0.183***	0.107	0.179**	-0.103	-0.139***
Vacant Units	-0.015	-0.026	-0.021	-0.012	0.216***
Walk to Work	-0.059	0.006	0.002	0.015	0.102**
Fixed Effects	1.653***	1.158	1.085	1.126	2.151***
	F(78, 762)	F(89, 751)	F(93, 747)	F(98, 742)	F(95, 744)
R^2	0.440	0.170	0.150	0.160	0.590
AdjustedR2	0.380	0.050	0.020	0.040	0.530
N	857	857	857	857	856

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Figure 1. Significant Arts Cluster Regression Coefficients in Quintile Regressions



¹ The term neighborhood has both social and geographic connotations. We employ the term in this study simply to mean a small geographic area that is larger than a block and exists within a city or region. Like most neighborhood studies and planning efforts, we define the neighborhood based on the available census data geography. However, the reality is that neighborhoods are extremely difficult to accurately define because individual residents often have different perceptions of what constitutes the defining features and geographic boundaries of their neighborhood.

² Given the available data, it is possible that we do not capture arts activity that could have emerged around newer CBDs in our sample. However, based on the existing literature on the arts and gentrification that finds gentrification to occur in older urban areas, we feel that we capture the vast majority of arts activity. Still, because it is possible that specific zip codes in MSAs not included in the study may undergo divergent change from those that we include we cannot be certain that the results are generalizable to the entire US.

³ We used two different weights. For absolute numbers (e.g. population), we calculated weights using the formula $w = a_{int} / a_{2000}$, where a_{int} is the land area from the 2000 ZCTA that overlaps with the 2010 ZCTA area and a_{2000} is the total area of the 2000 ZCTA. For ratios (e.g. the percent that walked to work), we calculated weights using the formula $w = a_{int} / a_{2010}$, where a_{int} is the same as above and a_{2010} is the total area of the 2010 ZCTA.

⁴ The 2007-2011 ACS data is a collection of data over a five year time period and, therefore, does not capture one point in time. It is, however, the most reliable and best available source of SES data at the micro-level and has been employed by others in time-series analysis.

⁵ Unfortunately, given data availability, we were not able to study potentially important variables related to land use and property characteristics though we recognize that they may have an effect on the relationship between arts industries and neighborhood change.

⁶ To identify outliers, we calculate the z-score for each variable included in the scatter plot. If a zip code has a z-score of 3 or higher (or -3 or lower) we consider it an outlier.

⁷ While we have made an effort to control for a wide range of variables, as in any time series model, changes can occur over the time period that we do not control for that may affect results.