The Geography and Marginal Willingness to Pay for Arts Amenities and Culture Amenities in the United States

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Abstract

Despite widespread recognition and public support for the arts, little is known about the actual geographic access to arts services and their effects on local economies. First, using data from the Quarterly Census of Employment and Wages (QCEW) between 2000 and 2022, I document three empirical patterns: (a) contrary to public belief, the number and share of arts establishments has grown on average, (b) both the level and growth of artistic services are concentrated in the Southwest and Northeast, and (c) the growth in establishments has been matched by a corresponding increase in employment in these counties. Second, using house price appreciation data from the Federal Housing Finance Agency, I estimate a hedonic pricing model to recover the marginal willingness to pay for arts services within a county: a 10% increase in arts establishments is linked with a 0.17-0.48% rise in house prices with considerable heterogeneity in areas with a higher concentrations of college educated and higher income workers. My identification strategy exploits within-county variation after controlling for all shocks within a state and year. The results are robust to several diagnostics, such as an instrumental variables strategy that exploits exposure to counties that exhibit greater arts concentrations since talent flows affect the availability of the arts, and state heterogeneity in the duration of closures of arts establishments during the Covid-19 pandemic.

Keywords: Arts, Culture, Hedonic Pricing, Marginal Willingness to Pay.

JEL Codes: H41, L82, R23, R30, Z11

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1 Introduction

There is large-scale public support for the arts, and the popular press is filled with stories about the economic and social value of the arts sector. For instance, a 2018 survey by Ipsos reported that 91% believe that "the arts are part of a well-rounded education for K-12 students" and 72% report "attending an arts or cultural event during the previous year."[1] However, there is little empirical research on the value that consumers place on the arts and the corresponding local effects. The closest evidence comes from the Bureau of Economic Analysis (BEA) satellite account, which found the arts and culture sectors account for 4.3% of gross domestic product (GDP) as of 2022.[2]

Theoretically, there are at least two reasons to expect that there are high economic and social returns to the arts. First, a voluminous body of macroeconomic research documents the growing demand for services (Buera and Kaboski, 2012), especially higher-value experience goods and services in cities (Diamond, 2016), over the process of structural transformation. Even with the rise of digitally-intensive goods and services (Gallipoli and Makridis, 2018), there is anecdotal evidence that consumers still value in-person activities. Second, the arts may have broader social impact as well, reducing political polarization by bringing people of different ideologies together around what is good, beautiful and true (Balietti et al., 2021). Similarly, the arts can provide inspiration, leading people to behave better and more pro-socially than they otherwise would have.[3] However, a big gap exists in the literature on how people actually value arts amenities.

The purpose of this paper is to document some descriptive facts about the arts across America

[1] https://www.americansforthearts.org/news-room/press-releases/americans-speak-out-about-the-arts-in-new-public-opinion-poll

[2] https://www.bea.gov/news/2024/arts-and-cultural-production-satellite-account-us-and-states-2022

[3] See Mastandrea et al. (2019) for a review of the psychology literature.

and provide a more definitive evaluation of the marginal willingness to pay (MWTP) for the arts using a hedonic pricing estimator. The first part of the paper is descriptive. Using data from the Quarterly Census of Employment and Wages (QCEW) from 2000 to 2022, I document three empirical patterns: (a) contrary to public belief, the number of arts establishments has grown in the average county, (b) both the level and growth of artistic services are concentrated in the Southwest and Northeast, and (c) the growth in establishments has been matched by a corresponding increase in employment in these counties. These patterns contrast with the prevailing narrative that the "arts are dying," but they are also puzzling in light of what we know about the labor market experiences of actual artists. For instance, Makridis (2023) shows that the earnings gap between artists and non-artists has doubled between 2006 and 2019. Furthermore, Makridis and Kuuskoski (2024) show that the returns to higher education are generally negative for artists, with the exception that some exposure to entrepreneurship is beneficial. Put together, arts establishments have been expanding while the lives of artists have deteriorated.

To better make sense of these patterns, I estimate the marginal willingness to pay (MWTP) for the arts using house price appreciation data applied to hedonic pricing models. My baseline identification strategy exploits within-county variation, controlling for local changes in employment and population and state $\times$ year fixed effects. Recognizing the potential for remaining time-varying shocks, especially related to within-county migration patterns among wealthier households who have a demand for the arts, I also introduce a Bartik-like instrument that exploits heterogeneity in the locations that individuals move from. In particular, using the Census Bureau's county-to-county migration files, I construct a Bartik-like instrument that exploits plausibly exogenous variation to arts shocks in connected counties and the resultant impact on the supply of artists in the home county. Given the concerns associated with Bartik-like estimators that have become more

well-known (Goldsmith-Pinkham et al., 2020), I also exploit quasi-experimental variation in state closures of businesses that were deemed "non-essential" during the Covid-19 pandemic, comparing counties that exhibited greater versus fewer days of closure for arts establishments. To ensure a meaningful comparison, I use an entropy balancing approach from Hainmueller (2012), matching based on similarities in population density and per capita income.[4] As another robustness exercise, I leverage historical variation in the disbursement of funding for arts organizations during the New Deal (Brounstein, 2024), which produces similar coefficient estimates.

The baseline specification exploits within-county variation and controlling for state × year fixed effects, showing that a 10% increase in arts establishments is associated with a 1.7-5% increase in house prices. These results are robust to a wide array of robustness exercises, including the use of the Bartik-like instrument and the duration of state closures of theaters during the pandemic. Furthermore, the effects are concentrated among areas with higher shares of young professionals (ages 18-34), shares of people with at least a college degree, and shares with people who earn over $100,000/year. There is slight evidence that the effects are also larger in more dense counties, but these estimates depend on using Zillow's house price measure, rather than the baseline approach from Bogin et al. (2019). I also document additional robustness using zipcode-level data that draws on filings to the Internal Revenue Service (IRS) from arts and culture public charities, allowing me to not only validate the QCEW data, but also control for both zipcode and county × year fixed effects. The same dimensions of heterogeneity are also present in this data. A back-of-the-envelope calculation from these capitalization effects shows that the average MWTP for a 1% increase in arts amenities is $5,000 in 2000, rising to roughly $12,000 by the end of the sample.

[4] An obvious concern with this approach is that mobility during the pandemic could contribute to changes in house prices and the number of arts establishments. However, Makridis and Wang (2024) show that social networks played an important role in propagating shocks, much more so than physical mobility or distance.

Finally, I exploit the staggered introduction of cultural districts, which are designated by local governments to promote arts, culture, and creative sectors through special zoning regulations and economic incentives, as an additional source of plausibly exogenous variation (Breznitz and Noonan, 2018; Portillo and Wagner, 2021; Wagner and Portillo, 2024). After validating the parallel trends assumption and adhering to recent guidance on dynamic treatment effects (Roth et al., 2023), I show that cultural district designations are associated with increases in house prices and these effects are concentrated in areas with increases in arts amenities. These results not only help validate the earlier capitalization effects, but also suggest an alternative approach to financing the arts and encouraging their positive externalities and spillovers through place-based policymaking, consistent with a large body of work on agglomeration economies (Kline and Moretti, 2013; Greenstone et al., 2010; Moretti, 2021; Leonardi and Moretti, 2023).

This paper contributes to an active literature on equilibrium sorting models and the valuation of non-market amenities (Roback, 1982; Kuminoff et al., 2013). Although typically applied to estimate the value of education, safety, and environmental quality, these methods are also well-suited to value the arts because individuals clearly value the arts, even if they do not necessarily actively participate and engage with them directly themselves. Most closely related, Bieri et al. (2023) develop and implement a methodology for calculating households' implicit expenditures on local amenities, emphasizing the significant influence of amenities like climate, environmental quality, and public goods on where people choose to live and work. In particular, they build a database of 75 amenities and apply a revealed preference approach to calculate implicit expenditures on these amenities, finding a total $562 billion as of 2000, or 8% of Americans' consumption expenditures.

While their results date back to an older literature on urban amenities (Blomquist et al., 1988; Albouy, 2016), very little work has been done quantifying the value of the arts. Most of the

hedonics literature has been in the context of health risks (Davis, 2004; Chay and Greenstone, 2005b), pollution (Chay and Greenstone, 2005a), or school quality (Black, 1999). Nevertheless, there is some empirical evidence on arts amenities. For instance, Falck et al. (2011) exploit quasi-experimental variation in the timing and dispersion of baroque opera houses in Germany to estimate the effects on the attraction of human capital. Similarly, Ahlfeldt and Maennig (2009) find positive spillover effects on land values from three German multifunctional sports arenas. Schuetz (2014) examine the presence of positive spillovers from art galleries in Manhattan, but find the effects significantly diminished once accounting for controls. By examining the capitalization of arts establishments into housing prices using comprehensive data and causal inference, this study provides new insights into the economic returns of arts amenities, complementing existing research on the valuation of urban amenities, which are subject to debate in the era of remote work.

This paper also contributes to a literature on the economics of the arts and cities. The urban economics literature indicates that higher-skilled workers tend to cluster in areas with greater amenities, benefiting from agglomeration economies (Kline and Moretti, 2013; Diamond, 2016).[5] More recent evidence from Couture and Handbury (2020) shows that young college graduates have increasingly located next to non-durable amenities (e.g., restaurants) in cities. Similarly, Couture et al. (2024) show that between 1990 and 2014, an increasing proportion of high income workers have relocated into downtown city centers, raising inequality. Part of these downtown city amenities includes the arts. Florida (2002) argues that the development of an artistic class is crucial for urban growth. However, the labor market outcomes of actual artists have deteriorated over the past two decades, which threatens to impact the sustainability of the arts (Makridis, 2023).

[5]See Glaeser and Gottlieb (2009) for a survey of the early literature on cities and spatial economics, as well as Glaeser et al. (2001) for evidence on the value of consumption amenities in cities.

This paper, by showing that the average county has seen an increase in arts establishments, even after accounting for population growth, presents a puzzle: if artists fare worse today, how have arts amenities, as measured by establishment and/or employment counts, expanded?

Public support for the arts has been a contentious issue, with debates centering on the efficacy and role of government intervention. To that end, some suggest that funding for the arts, if it reaches the underlying artists, could yield positive externalities for both artists and their communities (Leroux and Bernadska, 2014; Makridis, 2024b). Despite these theoretical foundations, empirical evidence on the causal impact of government arts funding remains limited, primarily due to the observational nature of most studies, which complicates the separation of treatment and selection effects (Alper and Wassall, 2006; Catterall et al., 2012).[6] This paper helps reconcile the puzzle of expanding arts establishments and lower artist wages by showing how the public values arts amenities, particularly in areas with higher income workers and more college graduates.

Studies on the agglomeration of labor markets provide useful analogs; for example, Kline and Moretti (2013) find significant long-term agglomeration effects from the Tennessee Valley Authority's investments in manufacturing. Similarly, Moretti (2021) document substantial productivity premiums for inventors in large occupational clusters, highlighting the broader benefits of agglomeration. In the context of the creative industries, Borowiecki (2013) and Kelly and O'Hagan (2007) find significant productivity gains and the emergence of artistic clusters through historical analysis. These findings underscore the potential for public investment in the arts to generate lasting economic benefits, aligning with studies on the spatial clustering of amenities and their impact on urban development (Florida, 2002; Diamond, 2016). These results are consistent with other

[6] Brounstein (2024) is one of the few papers that exploits plausibly exogenous variation from the New Deal, showing that the funding led to a persistent effect on share of the number of artists. As a robustness exercise, I also leverage this historical variation to identify the marginal willingness to pay for arts amenities.

examples from Germany (Ahlfeldt and Maennig, 2009; Falck et al., 2011), which point towards cultural amenities generating other positive externalities (e.g., attracting human capital).

2 Data, Measurement, and Descriptive Statistics

2.1 Data and Measurement

I draw on the Quarterly Census of Employment and Wages (QCEW), which is a quarterly count of employment and wages reported by employers, covering over 95% of U.S. jobs available at the county, Metropolitan Statistical Area (MSA), state, and national level, by detailed industry. Its primary source is administrative data from state unemployment insurance (UI) programs, supplemented by data from two Bureau of Labor Statistics (BLS) surveys: the Annual Refiling Survey and the Multiple Worksite Report. Before publication, BLS and state workforce agencies review and enhance the QCEW data, converting errors to correct values and confirming and annotating unusual movements. This makes it the "gold standard" for employment, wage, and establishment counts. While I extract the total employment, establishments, and wages across all organizations, I focus on private sector annual employment, number of establishments, and wages within the arts sector, focusing on number of establishments, as well as the total number (including public sector) to compute percent shares. I drop all observations with disclosure flags.

My baseline approach to measuring arts organizations involves using the North American Industry Classification Standard (NAICS) code 71, which includes arts, entertainment, and recreation. To focus on artistic organizations, I count the number of NAICS 71 establishments in a county after netting out NAICS 713, which covers amusement, gambling, and recreation industries.

To be sure, this measure is not perfect since it also includes NAICS 7112, which covers spectator sports, but it is the most comprehensive way to measure the arts across counties since the majority of counties do not have data on employment, wages, or establishments when disaggregating by four-digit NAICS codes due to confidentiality considerations.

To validate this proxy for the arts, I use national data across industries where there is not the same censoring problem due to confidentiality. In particular, I measure the arts directly using three four-digit NAICS codes: (a) Performing Arts Companies, (b) Independent Artists, Writers, and Performers, and (c) Museums, Historical Sites, and Similar Institutions. Figure A.1 in the Online Appendix compares the baseline indirect measure with the new direct measure, showing a near perfect correlation although the levels are off. Figure A.2 conducts a similar validation at the county-level, showing that there is a high 0.82 correlation between the indirect and directs arts share measures. Here, however, roughly 1,800 counties are included in a given year.

To measure house price appreciation, I draw on the county house price appreciation longitudinal data from Bogin et al. (2019). One advantage of it over, for instance, the Zillow Zestimates data is that they use repeated sales transactions, purging variation in the quantity of housing and other time-invariant characteristics that are common with a location, although my results are robust to using Zillow estimates too. Furthermore, Bishop et al. (2020) point out that using predicted prices, or even aggregated prices, can lead to biased MWTP estimates. Crucially, however, the county and zipcode longitudinal series from Bogin et al. (2019) are generated based on the recommended transaction-level data where housing attributes are taken into account and then aggregated.

Finally, I use the Census Bureau's county-to-county flows net migration and the county population files. The flows data is summarized in five-year groups, e.g., 2007-2011, 2008-2012, and so on. To produce annual variation, I take the mid-point, i.e. 2007-2011 is converted to 2009,

2008-2012 is converted to 2010, and so on.

2.2 Descriptive Statistics

Figure 1 begins by plotting the spatial distribution in the number of NAICS 71 establishments and, more specifically, arts establishments per capita × 1000.[7] Panel A shows the average number of NAICS 71 establishments per county is higher in urban areas, with the highest numbers appearing in major cities and surrounding counties. The central U.S. generally shows lower numbers, although there is a lot of missing data due to censoring in the QCEW. Panel B shows arts establishments are more numerous in urban counties. However, the highest numbers are even more concentrated in certain cities known for their cultural significance. Both panels show that urban areas have a higher number of establishments, reflecting the urban concentration of economic activity and cultural infrastructure. The arts establishments, while following a similar pattern, are even more concentrated in key cultural centers.

Figure 2 plots the 2008-10 to 2020-22 growth rates. Panel A shows a varied growth pattern, with some counties experiencing significant growth (darker shades), while others have seen a decline (lighter shades). The growth is not uniformly distributed and seems to be concentrated in specific regions. Panel B shows the growth pattern for arts establishments is also mixed, with some areas showing strong growth and others experiencing a decline. The distribution of growth for arts establishments appears to be somewhat more dispersed than for the broader NAICS 71 category. Both NAICS 71 and arts establishments have experienced growth and decline in different regions. However, the growth of arts establishments seems to be less concentrated in specific areas and

[7] Table A.1 in the Online Appendix presents means and standard deviations for each variable.

more spread out across the country.[8]

Finally, Figure 3 plots NAICS 71 and arts establishments as a percent share of the total. Panel A shows a higher concentration of NAICS 71 establishments in urban and coastal areas, with notable clusters in the West (e.g., California), the Northeast (e.g., New York), and some parts of the South (e.g., Florida). The central U.S. has a mix of moderate to low percentages, with some pockets of higher concentration. Panel B shows arts establishments also tend to cluster in urban and coastal regions, with the West Coast, Northeast, and parts of the South showing higher percentages. However, the concentration of arts establishments appears more pronounced in certain metropolitan areas compared to the broader NAICS 71 category. Both panels indicate a preference for arts and NAICS 71 establishments to be located in urban and coastal areas, likely due to higher population densities and greater economic opportunities. However, arts establishments show a more selective distribution, concentrating even more heavily in certain cultural hubs.

As robustness, Panels A and B in Figure A.3 in the Online Appendix document about employment and its growth using both the broader NAICS 71 and indirect arts measures. Unfortunately, only 2,338 counties are observed for NAICS 71 and even fewer 1,266 are observed for indirect arts. Nonetheless, average employment growth for these two measures are 0.138 and 0.388, respectively. The correlations between the growth in establishments and employment are 0.36 and 0.28, respectively. The almost identical correlation in the time series, coupled with the high correlation in the cross-section, provide confidence that the indirect measure performs reliably well.

These patterns relate with empirical evidence from Borowiecki and Graddy (2021b) about

[8]Given the increase in population over time, a natural question is whether the growth observed still holds when looking at changes in the share of arts establishments. Figure A.4 in the Online Appendix shows that the shares have also grown over time, and that there is a correlation of 0.58 and 0.39 between the growth rates and share changes for NAICS 71 and arts, respectively. Figure A.5 in the Online Appendix also explores the spatial distribution of the wage bill for NAICS 71, as a share of the total wage bill, and correlates it with the share of NAICS 71 establishments, producing a correlation of 0.46.

the socio-economic characteristics of artists and whether they locate. Using data from roughly 170 years, they study the historical development of creative activity and clusters within the arts, finding that the proportion of female creatives has been relatively high, though time constraints often hinder the pursuit of creative occupations. Racial inequality remains persistent and slow to change, while access to financial resources within a family significantly facilitates entry into artistic careers. Furthermore, famous creatives can positively impact the uptake of creative occupations and contribute to the size and sustainability of creative centers.

3 Estimating the Marginal Willingness to Pay for Arts

3.1 Theoretical Framework

After documenting a wide array of empirical patterns in Section 2, an obvious question is explaining the cross-sectional dispersion in arts amenities and understanding why arts establishments have grown in the average county over time. The hedonic pricing model provides a robust framework for understanding how the value of non-market amenities, such as arts establishments, is capitalized into housing prices. Originating from Rosen's seminal work (Rosen, 1974), the hedonic pricing method decomposes the price of a good into the implicit prices of its characteristics, allowing researchers to estimate the value of individual attributes that are not directly sold in the market. The fundamental premise is that the price of a house (P) can be expressed as a function of its characteristics (Z), which include both structural attributes (e.g., size, age, number of rooms) and locational attributes (e.g., school quality, proximity to parks, and arts establishments):

$$P = f(Z) \tag{1}$$

In the context of valuing arts amenities, locational attributes (Z) include the presence and concentration of arts establishments within a given area. The utility of a household (U) is thus derived from both the consumption of the house and the enjoyment of local amenities:

$$U = U(X, A, Z) \tag{2}$$

where:

- X represents other goods consumed,
- A denotes arts-related amenities,
- Z includes all other housing characteristics.

Households maximize their utility subject to their budget constraints, and the equilibrium housing price reflects the capitalization of these local amenities, described as follows:

$$\max_{h,x} U(X, A, Z) \quad \text{subject to} \quad P = I - X \tag{3}$$

where h is housing consumption, x is non-housing consumption, and I is income.

The arts represent a unique category of non-market amenities that encompass a wide range of cultural, educational, and entertainment services. These amenities contribute to the overall quality of life by providing aesthetic pleasure, fostering community engagement, and enhancing social cohesion (Throsby, 2001). In the hedonic pricing framework, the presence and growth of

arts establishments (A) in a locality can be expected to positively influence housing prices due to:

1. Cultural Enrichment: Arts establishments such as galleries, theaters, and music venues enrich the cultural fabric of a community, attracting residents who value cultural experiences (often higher income) and can complement other goods/services (Florida, 2002).

2. Social Capital: Arts amenities often serve as social hubs, facilitating community interaction and cohesion, which can make neighborhoods more desirable (Leroux and Bernadska, 2014).

3. Economic Development: The concentration of arts establishments can stimulate local economies by attracting tourists, creating jobs, and encouraging spending in related sectors (e.g., restaurants, retail) (Markusen and Gadwa, 2010).

Given these factors, the hedonic pricing model can be adapted to include arts-related amenities explicitly. The model posits that the price of housing is a function of various characteristics, including arts amenities, which is examined in the next sub-section.

3.2 Statistical Model

To estimate the marginal willingness to pay for arts amenities, I consider regressions of the form:

$$h_{ct} = \gamma a_{ct} + \beta X_{ct} + \phi_c + \lambda_t + \varepsilon_{ct} \tag{4}$$

where h_{ct} denotes the log house price in county c and year t, a the log number of arts establishments, X a vector of time-varying county controls, and ϕ and λ fixed effects on county and year.[9] Standard errors are clustered by county. The inclusion of both county and time fixed effects

[9]My use of log house prices from Bogin et al. (2019) is driven by their detailed construction of consistent

purges all heterogeneity that is constant across time within a county, and additional specifications also consider added state × year fixed effects to purge time-varying heterogeneity in state policy (e.g., funding for the arts that is driven by legislative agendas).

The primary concern with Equation 4 is that unobserved time-varying shocks that affect house prices could be correlated with the arts concentration. For example, if there is an influx of wealthy residents, then that would affect the demand for the arts and more expensive homes. To address this concern, I pursue two strategies. First, I control for time-varying measures that correlate with local demand factors, including population, and both total establishment and employment growth. If an area is becomes popular, that should show up in population and/or employment.

Second, I pursue an instrumental variables strategy that exploits heterogeneity in the locations that people are migrating from, namely their arts concentration, controlling for all shocks that are common across counties in the same state and year. The intuition is as follows: if a county is receiving more inflows from another county where arts are increasing, then that should increase the probability that more artists are coming to it as well. This is consistent with Borowiecki and Graddy (2021a) who finds that areas that experience a greater inflow of foreign artists also see a rise in native artists. The exclusion restriction is that these county inflows affect house price growth only through its effects on the number of arts establishments. Given the controls, especially population growth, the IV regression isolates variation from the composition of inflows.

To operationalize the instrument, I define:

price indices by county that control for a wide array of housing characteristics, weighted and aggregated within a country-year. This means that there is no need to include housing characteristics as additional right hand side variables in the empirical specification. However, the results are also robust to using Zillow's Zestimates index for median house price in a county-year.

$$BARTIK_{ct} = \sum_{c'} M_{c,c'} \times a_{c',t} \tag{5}$$

where $BARTIK_{ct}$ denotes the Bartik-like instrument, $M_{c,c'}$ denotes the county-to-county migration inflows from county c' to c, and $\Delta a_{c',t}$ denotes the establishment and employment share of the arts in c'. Although migration rates were low after the financial crisis (Molloy et al., 2011), there was still some migration, at least due to foreclosures on home mortgages (Makridis and Ohlrogge, 2021), and it grew significantly by 2016, particularly for those ages 25-35 (Gallego and Meisenzahl, 2022). Figure 4 presents the first-stage relationship between the two variants of the Bartik IV using both employment and establishment shares in the connected county.

Using the Bartik-like instrument, I estimate the following 2SLS model:

$$\begin{aligned} a_{ct} &= \zeta BARTIK_{ct} + \beta X_{ct} + \gamma INFLOWS_{ct} + \phi_c + \lambda_t + \varepsilon_{ct} \\ h_{ct} &= \xi \widehat{a_{ct}} + \beta X_{ct} + \gamma INFLOWS_{ct} + \phi_c + \lambda_t + \varepsilon_{ct} \end{aligned} \tag{6}$$

where Equation 6 now includes state $\times$ year fixed effects for the baseline, rather than the inclusion of county fixed effects too. However, I also include the log number of inflows into a county as a control to mitigate concerns about unobserved county-specific heterogeneity. In this sense, the fundamental insight behind the Bartik instrument is that increases in the number of inflows, especially from counties that rank higher in their number of arts establishments and/or employment, should naturally flow through and increase arts amenities in the receiving county. These inflows should not affect house prices in ways other than through arts establishments, after accounting for overall inflows. That is, time-varying exposure to counties' evolving arts

establishments should impact the receiving county only through its effects on the number of arts establishment that form. Violations to this assumption, which are possible and why alternative diagnostics are presented, would occur if the heterogeneous exposure led to changes in house prices through non-arts channels. However, the inclusion of overall employment and establishment growth help mitigate concerns of transitions to non-arts establishments.

Before continuing, it is worth pausing on a practical implementation detail. The county-to-county migration inflows are only available in five-year batches, starting for 2007-2011 (see Section 2 for more details). I normalize these inflows for each home county (i.e., c) and compute the average between 2009 and 2010, using these county-to-county inflows as a proxy for the entire sample. Practically speaking, using one year of county-to-county inflows as a proxy for the full sample is a reasonable approximation because of the high degree of persistence in these flows. For instance, a regression of log inflows on its one-year lag in the longitudinal *county-to-county* data produces a coefficient of 0.93. Similarly, a regression of log inflows on its one-year lag in the longitudinal *county* data produces a coefficient of 0.99. Furthermore, I will present robustness including only the 2011-2022 data in the IV regressions, i.e. including only years following the approximation of the county-to-county migration flows.

A final concern is the possibility that the variation in arts amenities across locations could potentially violate the Stable Unit Treatment Value Assumption (SUTVA): changes in amenities in one area may affect housing demand and prices in neighboring regions. This spatial interference could lead to either an overestimation or underestimation of the true marginal willingness to pay for arts amenities. First, to assess whether spatial spillovers are a major threat to identification, I will also present estimates of the Bartik IV that exclude neighboring (within 100 miles) counties that might experience indirect effects from changes in arts amenities in treated areas. Second, I

include lagged values of arts establishments among counties within 100 miles. Third, I examine a related concern of other time-varying amenities that could be correlated with the arts, like the number of specialty restaurants, by including these as controls too.

4 Baseline Results

4.1 Baseline Model

Table 1 documents the main results associated with Equation 4, coupled with some dimensions of heterogeneity. Starting with column 1, a 10% increase in the number of arts establishments is associated with a 0.39% increase in house prices. Recognizing the potential for unobserved heterogeneity, column 2 adds county and year fixed effects, exploiting within-county changes in the number of arts establishments and house price appreciation; the coefficient grows slightly in magnitude to a 0.50% increase for a corresponding 10% rise in arts establishments.

Even though unobserved heterogeneity arising from time-invariant factors is the greatest concern, there could also be other time-varying omitted variables. For example, an area that is booming, potentially due to improved schools or a rapidly growing economic environment, may simply attract more people and create more jobs. Column 3 controls for the annual growth rate in total employment, establishments, and population. The results are unchanged. Furthermore, recognizing the heterogeneity in state policymaking, especially over such a long time span, column 4 introduces additional state $\times$ year fixed effects. The coefficient is reduced in half, suggesting that a 10% rise in establishments is associated with a 0.17% increase in house price appreciation.

Next, I explore several dimensions of heterogeneity, taking the 2015-2019 American Community

Survey (ACS) demographic data to produce high/low indicators based on whether a county falls above/below the median of the distribution for a given variable. I find that the capitalization effects of the arts are concentrated in areas with a higher share of 18-34 year olds ("high youth"), a higher share of people with at least a college degree ("high college"), and a higher share of people earning over $100,000/year ("high Over 100K"). Interestingly, however, there is no heterogeneity when partitioning between high versus low population densities.[10]

Are these results sensitive to the measurement of house prices? As an alternative, I consider data from Zillow, namely the single family average house price and the higher tier house price, which have medians of $140,373.5 and $246,325.9, respectively. Tables A.4 and A.5 document these results. The main results are unchanged with two exceptions. First, the unconditional correlation is ten-times as larger with the Zillow data. That is because Bogin et al. (2019) focus on price effects, rather than quantity differences that could also be correlated with local characteristics (e.g., homes in Texas will tend to be larger than in Boston).[11] Second, the heterogeneous treatment effects generally go in the same direction with the exception that there is some statistically significant, positive interaction between high population density areas and arts establishments. Whether using

[10]A natural question is how these coefficient estimates on arts amenities compare with, for instance, other "leisure luxuries," such as those studied by Couture and Handbury (2020). Table A.2 in the Online Appendix presents capitalization effects controlling for both arts and restaurant establishments, as well as employment in both categories, across the same sets of specifications. In the preferred specification containing both county and year fixed effects, the coefficient on restaurants remains roughly 8x as large in magnitude when measured using establishments, but statistically indistinguishable when measured using employment per capita. As a result, the potential for other non-arts amenities as a potential confounder does not qualitatively alter the results and only in minor ways affects the quantitative estimates. Figure A.6 shows that the correlation between arts and restaurant employment and establishments are around 0.88 in the same county, suggesting that there is evidence of complementarity and spillovers among them. Similarly, Table A.3 in the Online Appendix presents results using the log county arithmetic mean of particulate matter (PM) as an additional control. Although only 20% of the counties have pollution data available, and thus the coefficient estimates vary based on the sample, the inclusion of pollution as an additional control does not alter the results in a statistically significant way.

[11]In fact, the equivalence between the preferred specification containing fixed effects and controls with the Zillow versus Bogin et al. (2019) price index data suggests that the index does a good job controlling for housing characteristics. Hedonic price theory relates the price of a house with local amenities and housing characteristics. In this sense, the construction of the house price index is akin to a "stage zero" before it gets used in the baseline.

single family or high tier home prices, the coefficients are significant at the 5% level.

Another concern is that the results are sensitive to the proxy for arts amenities. While the number of arts establishments is a sensible proxy for arts amenities, an alternative approach is to count the number of arts employees normalized by county population within the year. Table 2 documents these results. Starting with column 1, a percentage point (pp) increase in artists per capita is associated with a 15% increase in house prices. After controlling for county and year fixed effects in column 2, the estimate declines in magnitude to 9.2%. The estimate is invariant to the inclusion of overall employment, establishment, and population growth in column 3. After including state × year fixed effects, the estimate declines further in magnitude to 4.4%, but remains statistically significant at the 1% level. The remaining columns document the same pattern of heterogeneity as the main results, namely that the interactions with whether the county is above the median in its share of college graduates and individuals earning over $100,000/year are positive and statistically significant. In sum, these results suggest that the MWTP estimate is not sensitive to focusing just on the number of arts establishments as a proxy for arts amenities.

4.2 Robustness Exercises

First, Table 3 documents the IV results. Starting with column 1, which contains only year fixed effects, a 10% rise in log arts establishments is associated with a 0.98% rise in house prices. Recognizing the potential for time-varying unobserved shocks at the state level, column 2 adds state × year fixed effects, slightly reducing the coefficient estimate. Column 3 adds county fixed effects, which doubles the coefficient estimate. Unfortunately, that appears to be driven by the decline in the first-stage F-statistic from 43 to 27. Furthermore, to the extent that the county-

to-county migration flows obtained in 2009 and 2010 are endogenous based on the pooling of all years, column 4 restricts the sample to 2011-2022 only, producing similar results. Nonetheless, the F-statistics are well-above the rule-of-thumb of 10, and they are slightly lower in columns 2, 3, and 4 which sequentially add controls and reduce the sample, as theory would predict.[12]

Are the larger estimates reasonable? On one hand, areas that exhibit greater concentrations of artists and arts organizations also attract higher income residents who drive up house prices. On the other hand, given the negative earnings premium of artists, and that it has doubled over the past 15 years (Makridis, 2023), that could drive down house prices. In this sense, the direction of bias could go in either direction and whether the IV estimates should be larger or smaller is an empirical question. As a result, the positive and larger preferred coefficient of 0.071 is comforting.

What if these inflows simply reflects some unobserved shock to migration flows? If the intuition behind the IV is valid, then the inflows should be driven by flows of artists into a county, rather than other occupations, such as laborers, administrative workers, and so on. Fortunately, the Census Bureau provides *county-by-county-by-occupation* flows for 2008-2012. Although the occupational grouping is broad, and the nearest category only includes "Management, business, science, and arts occupations," it nonetheless provides a useful validation exercise. Constructing a comparable Bartik-like instrument using these occupation flows produces a nearly identical point estimate of 0.012 with even greater statistical precision (p-value = 0.00). However, I nonetheless do not use it as the preferred IV estimate because roughly a third of county-to-county flows are censored, potentially due to confidentiality reasons, and could introduce unnecessary measurement error.

Goldsmith-Pinkham et al. (2020) introduce several diagnostics that are important to examine to test the assumptions underlying Bartik-like instruments. For starters, Figure A.7 in the Online

[12]I have also controlled for log AGI using the Internal Revenue Service (IRS) SOI data.

Appendix plots the relationship between the county-to-county inflows in 2009-10 and both house price (Panel A) and employment (Panel B) growth between 2000 and 2010, showing that there is little correlation. This suggests that the "Bartik shares" are plausibly exogenous.

Another identification strategy to assess the robustness of these results involves exploiting quasi-experimental variation emerging from the intensity of the lockdowns during the pandemic. Given that the lockdowns primarily affected industries deemed as "non-essential," which included the mandated closure of the arts, then the capitalization effect on house prices should vary as a function of the intensity and duration of these lockdowns. To measure the length of each state's lockdown, I use the COVID-19 US State Policy (CUSP).[13] Figure A.8 in the Online Appendix presents the spatial heterogeneity, ranging from zero days in South Dakota to 392 days in California. I subsequently partition states into high/low based on the median (73 days). Recognizing that states vary in observed ways, I use entropy balancing from Hainmueller (2012) to match states based on pre-pandemic characteristics, namely the employment share in information services, finance, insurance, and real estate, and the share of the population earning over $100,000/year.[14]

Table 4 documents these results restricted to the years 2019-2022. Just as in the main results, the direct effect of log arts establishments on house prices is positive. In fact, the coefficient estimate is roughly twice as large, which could be driven by artificially high house prices as a result of depressed mobility and forbearance on mortgages, which helped prevent a wave of foreclosures (Larson et al., 2024). More importantly, however, the direct effect of the indicator of the state having above the median in days of arts closures is negative, and roughly half to 2/3 the magnitude

[13] https://statepolicies.com/data/

[14] One limitation of this approach is that the results only reflect capitalization effects if there is an expectation that the theaters may not return, and thus impact house prices longer-run. While that is not true at scale, there were many areas where people may have expected some theaters to close completely given the financial fragility that they were in (see Makridis (2024a) for evidence on the revenues and expenses of opera companies throughout the U.S. over these years).

of the direct effect. In the preferred specification of column 4, which applies the entropy balancing weight, there is a countervailing 0.29% decline in house prices for the corresponding 10% increase in arts establishments among the states with long closures on arts establishments.[15] This suggests that house prices reflected the closures of arts establishments, which may have also led to broader declines in urban centers, such as a rise of vacancy rates and crime.

Yet another identification strategy draws on the results from Brounstein (2024), who compiles data on New Deal funding of arts institutions that persists in its effects on contemporaneous arts outcomes. Given that the historical factors that led to differential funding during the New Deal should be exogenous with respect to recent house prices, I use this historical variation in funding as an instrument for the log number of arts establishments averaged between 2000-2006 with the average log house price between 2000-2006 as the outcome variable. Furthermore, I control for a vector of 1930s demographic characteristics, as well as contemporaneous demographics. Table A.6 documents these results. Interestingly, I find very similar estimates as the baseline results presented earlier, significant at conventional levels. However, the F-statistic is slightly under the rule-of-thumb, so this simply serves as another comforting robustness exercise.[16]

4.3 Coverage and Alternative Data

One final concern with the results thus far is that the QCEW has poor coverage over the arts and culture sector, or perhaps nonprofits more generally. To answer this question, I draw on

[15] To ensure that this result has a causal interpretation, I also implement a triple-difference estimator that traces out the evolution of house prices in response to changes in arts establishments in states that rank above and below the median in days theaters were closed, and before and after the pandemic (i.e., 2019 versus 2020-22). The triple interaction has a coefficient of -0.008 (p-value = 0.00), but the low coefficient estimate could be a function of not having enough variation.

[16] I focus on 2000-2006 because it is prior to the run-up of the financial crisis. The further out I go in the time series, the lower the F-statistic, which is intuitive since historical funding from the New Deal should become an increasingly more noisy proxy for contemporaneous outcomes as time elapses.

additional data from the NCCS from 1989 to 2014, covering data from the Internal Revenue Service (IRS) on the forms that nonprofits and charities file. I focus the sample on arts and culture public charities, counting the number per zipcode-year, as well as other financial variables, such as contributions and program revenue. I also match these with the 2000 Decennial Census to measure local demographics, allowing for similar dimensions of heterogeneity as before. An upside of this data is that it allows me to sequentially layer even stricter levels of fixed effects, including county × year, exploiting variation within the same zipcode over time after controlling for all shocks that are common within the same county and year.

Table 5 documents these results. While column 1 presents the raw correlation, generating a coefficient of 0.009 (p-value = 0.00), column 2 adds zipcode and year fixed effects, raising the coefficient to 0.011 (p-value = 0.00). Downwards bias could happen if public charities locate in less expensive areas, e.g. to save on costs. Columns 3 and 4 add state × year and county × year fixed effects, producing coefficients of 0.009 and 0.007, respectively. Furthermore, the same dimensions of heterogeneity are present here, namely on more educated and higher income areas. Similar results are also obtained if using the log contribution amount or program revenues (see Table A.7 in the Online Appendix). The qualitative similarity between these results and those obtained earlier is not surprising since there is a strong correlation of 0.68 between the number of arts charities in the IRS data and the number of arts establishments in the QCEW (see Figure A.9 in the Online Appendix) with the QCEW data implying a median number of 9 arts establishments across counties and the IRS data implying a median of 4.[17]

[17]Using these same data, I also estimate the heterogeneity in the return to arts amenities over time in Figure A.10 of the Online Appendix. The results show that there has been an increase from nearly -0.01 to 0.02 (statistically significant at the 1% level) from 1989 to 2015, suggesting that preferences for arts amenities have grown. Crucially, these estimates are obtained using county fixed effects, which was not possible with the QCEW data.

4.4 Housing Supply Elasticities

There is a large literature on the role that housing supply plays in accounting for price growth (Saiz, 2010; Glaeser and Gyourko, 2018). One concern is that the increase in house prices simply reflects gentrification and entry/exit into areas that are housing supply constrained. Table A.8 in the Online Appendix reproduces the main results, estimating the baseline specification separately for areas that rank above versus below the median in new housing supply units between 2005 and 2014. A range of specifications show that the positive effects on house prices are concentrated in the counties that exhibit higher housing unit expansion. Table A.9 in the Online Appendix replicates these results with the zipcode data, but does not find any systematic difference between zipcodes that rank above versus below the median in the growth rate of housing units.

4.5 Aggregate Implications

The results thus far reflect the capitalization effects of arts amenities in house prices. To convert them to a marginal willingness to pay (MWTP), I estimate the baseline specification separately by state (see Figure A.11 in the Online Appendix for the distribution of these).[18] Following Kuminoff et al. (2010), I take the product between the capitalization effect coefficient and the value of single-family homes by year over 2000 to 2023 deflated using the 2017 personal consumption expenditure (PCE) index to obtain a time-varying average MWTP.

Figure 5 documents the estimated mean and standard deviation MWTP by year using a

[18] One concern with some of these coefficients, when obtained at the state-level, is that states vary in their number of counties, as well as (and more problematic) the number of counties that are censored due to confidentiality issues with the QCEW. Figure A.12 shows that there is a positive correlation of 0.33 between the capitalization effect and state population as a share of the nation, suggesting that there is likely a downwards bias due to the censorship of values.

weighted average across states based on the state's population as a share of the nation. The average starts at just under $5,000 in 2000 and rises to just over $10,000 by 2024 (normalized to 2017 real prices). While the increase reflects the rise in house prices, the base level nonetheless suggests that the MWTP is still meaningful (and remains consistent with the earlier evidence in Figure A.10 of the Online Appendix that the capitalization effect of arts amenities has grown).

5 Implications for Federal Funding of the Arts

There has been significant debate about the efficacy of state and federal funding for the arts and the potential presence of positive spillovers (Leroux and Bernadska, 2014). One of the longstanding challenges has been the difficulty for arts organizations to quantify measurable outcomes using modern causal inference practices (Makridis, 2024b). There is, however, some empirical evidence on the impact of state policies that invest in the arts.

Breznitz and Noonan (2018) provide cross-sectional evidence that areas with higher educational investments in arts and digital media also exhibit greater employment in these sectors. Building upon this result using a difference-in-difference estimator on the introduction of cultural districts in Louisiana, Portillo and Wagner (2021) find that residential properties within cultural district boundaries sell for 7% more following the designation, relative to those outside the district. Similarly, using data across 18 states and 375 cultural districts, Wagner and Portillo (2024) find that employment among cultural establishments increases by 2.6-3.2% following the designation, but do not find evidence of spillover effects on other types of establishments. Brounstein (2024) shows that in New Deal funding had a persistent effect on the share of artists.

Following the longitudinal variation in the staggered introduction of cultural districts across 18

states in Wagner and Portillo (2024), I build upon these results by estimating similar difference-in-difference regressions with house prices as the outcome variable.[19] The matched data is substantially smaller, containing only 162 counties.[20] A regression of an indicator for the match on log employment, log population, and log arts establishing, producing null coefficients for employment and population, but a coefficient of -0.024 for arts establishments significant at the 1% level.

Table 6 documents these results. Starting with the unconditional correlations in columns 1 and 4, the capitalization effect between arts establishments or artists/capita and house prices is concentrated in the cultural districts. However, as county and time fixed effects are added in columns 2 and 5, the direct effect also becomes positive, although not statistically significant in the case of artists/capita. Columns 3 and 6 add overall employment, establishment, and population growth as controls, and the results do not change substantially. In this baseline specification, a 10% increase in arts establishments after the designation of a county as a cultural district is associated with an additional 0.24% increase in house prices (a 0.53% increase before the designation). Similarly, a 1pp increase in artists/capita after the designation of a county as a cultural district is associated with an 20% increase in house prices (a 3.2% increase before the designation). Furthermore, all the increase in house prices resulting from the cultural district designation is concentrated in the interaction with the arts concentration, consistent with theory.[21]

To assess whether the timing is plausibly exogenous, Figure A.13 in the Online Appendix

[19] In addition, I extend Wagner and Portillo (2024) by finding that the designation of a cultural district is associated with a 5.6% increase in arts establishments, conditional on total employment, establishment, and population growth, as well as county and year fixed effects.

[20] Restricting the data to counties that have a cultural district designation between 2005 and 2018, which would leave five years before and after to test parallel trends, also does not change the results. Doing that produces 122 counties.

[21] For reference, the capitalization effect on house prices of cultural districts if 4.8%, obtained through a regression of log house prices on an indicator for cultural district, controlling for county and year fixed effects. This coefficient is identified off variation within the same county over 2000 to 2022, comparing house prices before versus after the designation.

plots the cumulative density function of cultural districts from 2000 to 2022. Furthermore, Panels A and B in Figure A.14 in the Online Appendix test for parallel trends, showing that there is some pre-trend, particularly when failing to account for time-varying county controls. Driven by concerns about dynamic treatments (Roth et al., 2023), I follow Callaway and Sant'Anna (2021). The results show that there is no significant effect before the designation of a cultural district (coefficient = 0.0029, p-value = 0.325), but a significant positive effect after the treatment (coefficient = 0.0436, p-value = 0.003). Additionally, the treatment effect grows over time with the post-treatment periods, showing consistently positive and statistically significant effects.

What does all this mean for the future of the arts and the optimal role of public funding? While public support for the arts is efficiency-enhancing if there are positive externalities, the arts community has often looked to federal support as a panacea. However, at least within the performing arts community, net operating income has remained flat since 2005 and ticket sales have dipped (Makridis, 2024a), pushing theaters into financial upheaval. An alternative and complementary approach is for states and local governments to empower through the designation of cultural districts and/or refinements to the tax code. In particular, the evidence presented here suggests that designating an area as a cultural district can have a persistent effect on house prices, which would be consistent with positive externalities from arts/culture organizations in an area.

6 Conclusion

There is a voluminous literature that uses hedonic pricing and sorting models to infer the value of not only non-market goods, but also urban amenities. Drawing on these methods, this paper provides new insights into the economic value of arts amenities by quantifying their impact on local

housing markets. Using data from the Quarterly Census of Employment and Wages (QCEW) and house price appreciation data, I document significant effects of arts establishments on house prices, suggesting that consumers place substantial value on access to the arts. Specifically, a 10% increase in the number of arts establishments is associated with a 1.7-5% increase in house prices, with the effects being more pronounced in areas with higher concentrations of young professionals, college-educated individuals, and higher-income households. These findings contribute to the broader literature on equilibrium sorting models and the valuation of non-market amenities (Kuminoff and Mathes, 2023), showing that arts amenities are valued by households and influence their location choices, as well as provide local economic and social benefits (Throsby, 2001).

Several questions remain for future research. First, what are the long-term impacts of sustained investment in arts amenities on local economies? Understanding the persistence of these effects can inform policy decisions about the allocation of resources to the arts. Second, how do different types of arts establishments (e.g., visual arts, performing arts) vary in their impact on local housing markets and overall economic development? Third, how do demographic and socioeconomic factors mediate the relationship between arts amenities and housing prices? Future research could explore these questions using more granular data and advanced econometric techniques.

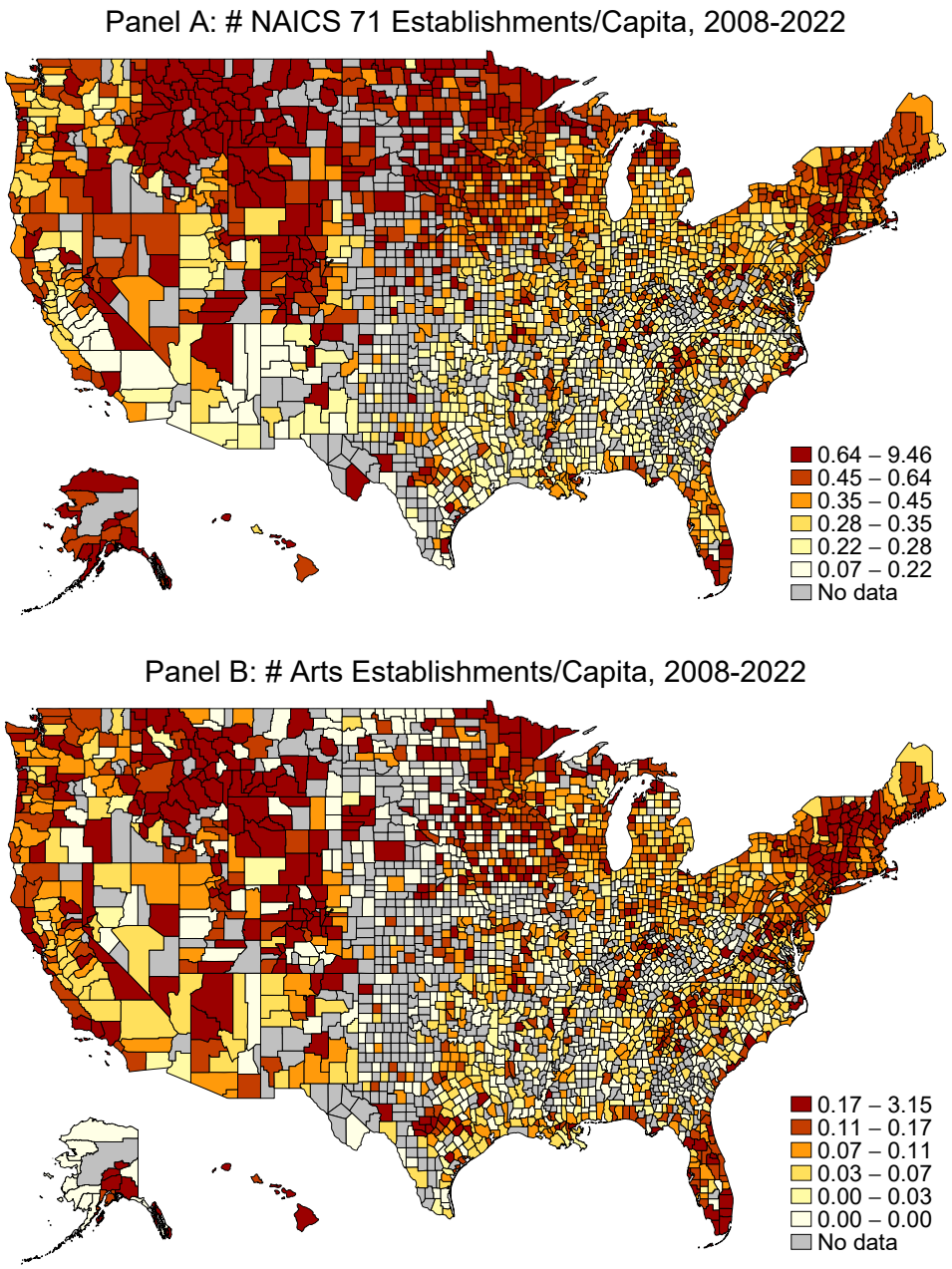
Tables and Figures

Table 1: Estimating the Capitalization Effects of Arts Establishments

Dep. var. =	log(House Price Index)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(Arts Establishments)	.039***	.050***	.048***	.017***	.027***	.047***	-.001	.047***
	[.002]	[.005]	[.005]	[.003]	[.007]	[.005]	[.007]	[.012]
× High Youth					.035***			
					[.010]			
× High College						.091**		
						[.044]		
× High Over 100K							.074***	
							[.010]	
× High Population Density								.001
								[.013]
Employment Growth			-.168***	-.037**	-.170***	-.168***	-.162***	-.168***
			[.024]	[.018]	[.024]	[.024]	[.024]	[.024]
Establishment Growth			.398***	.366***	.393***	.397***	.398***	.397***
			[.036]	[.032]	[.036]	[.036]	[.036]	[.036]
Population Growth			.672***	.345***	.678***	.674***	.685***	.672***
			[.095]	[.058]	[.095]	[.095]	[.095]	[.094]
R-squared	.05	.87	.88	.95	.88	.88	.88	.88
Sample Size	34848	34751	33668	33640	33668	33668	33668	33668
County FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Year FE	No	No	No	Yes	No	No	No	No

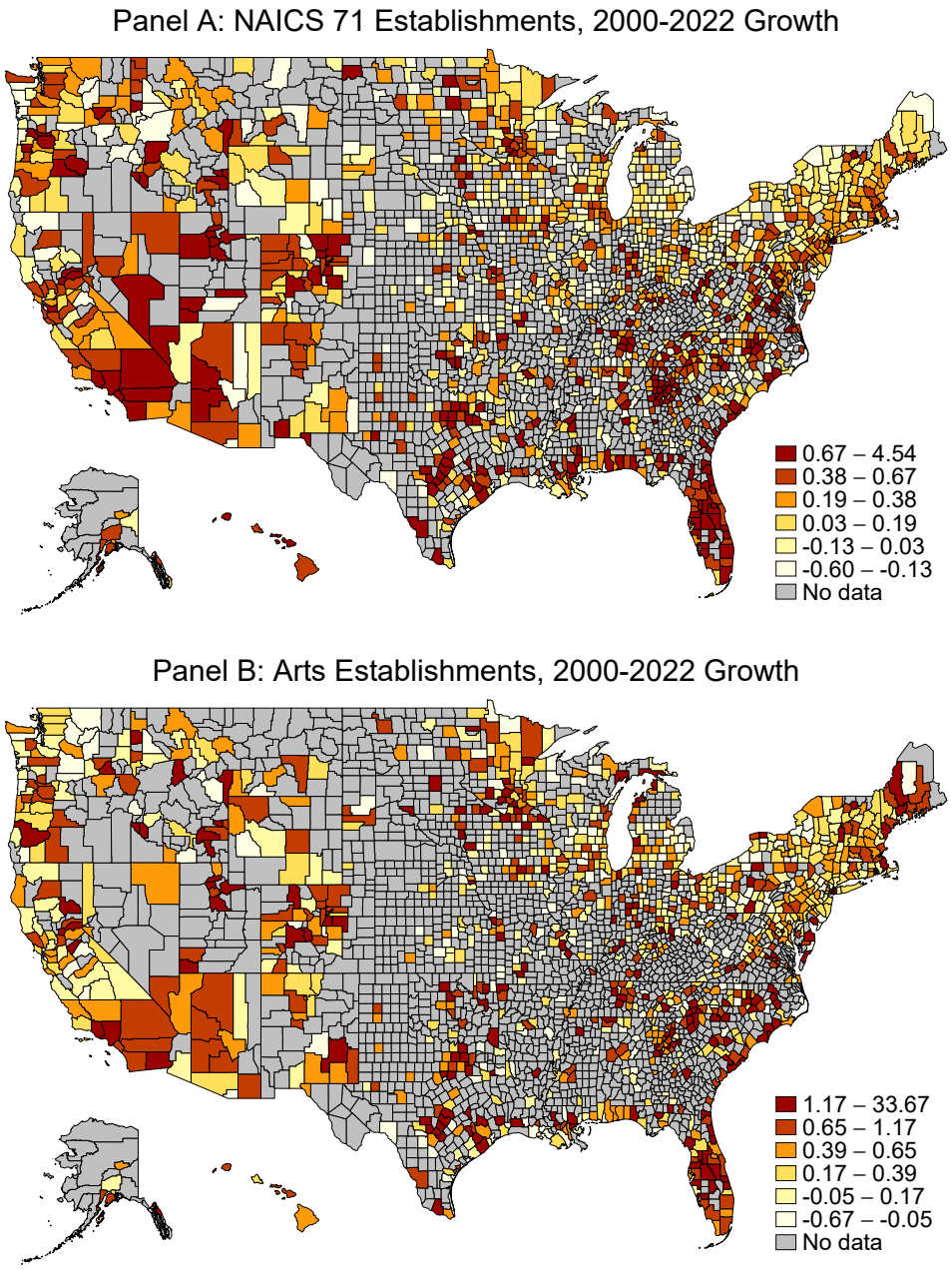
Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), and Census Bureau (2001-2022). The table reports the coefficients associated with regressions of the log house price index on the log number of establishments (log plus one to allow for zeros), conditional on the year-to-year growth rate in total employment, establishments, and population and county, year, and state × year fixed effects. Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.

Figure 1: Spatial Distribution of Average Number of NAICS 71 and Arts Establishments



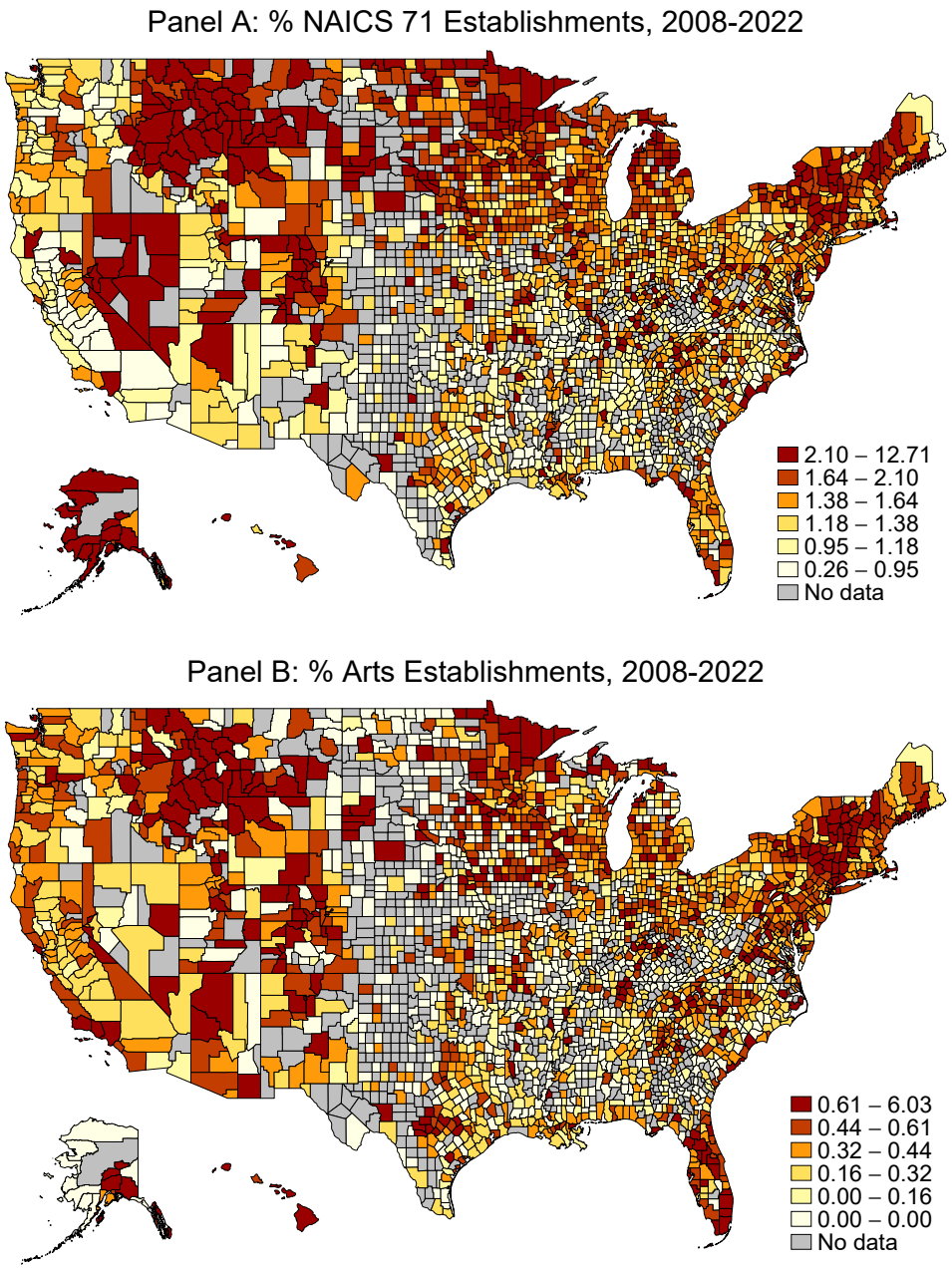
Notes.—Source: Quarterly Census of Employment and Wages (QCEW). The figure plots the average number of establishments per capita in the North American Industry Classification (NAICS) 71 classification in Panel A, and the number of arts establishments per capita in Panel B. NAICS 71 includes arts, sports, and recreation. Arts is defined as NAICS 71 netting out NAICS code 713, which includes recreation, but still retains spectator sports. The average number of establishments per capita × 1000 in Panels A and B are 0.485 and 0.107, respectively. The sample is restricted to private establishments only.

Figure 2: Spatial Distribution of Growth in Number of NAICS 71 and Arts Establishments



Notes.—Source: Quarterly Census of Employment and Wages (QCEW). The figure plots the growth rate between the 2000-05 and 2020-22 (average) in the number of establishments in the North American Industry Classification (NAICS) 71 classification in Panel A, and the number of arts establishments in Panel B. NAICS 71 includes arts, sports, and recreation. Arts is defined as NAICS 71 netting out NAICS code 713, which includes recreation, but still retains spectator sports. The average growth rates in Panels A and B are 0.29 and 0.65, respectively. Furthermore, the correlation between these growth rates and the normalized by population growth rates are 0.84 and 0.88, respectively. The sample is restricted to private establishments only.

Figure 3: Spatial Distribution of NAICS 71 and Arts Establishments, Share of Total



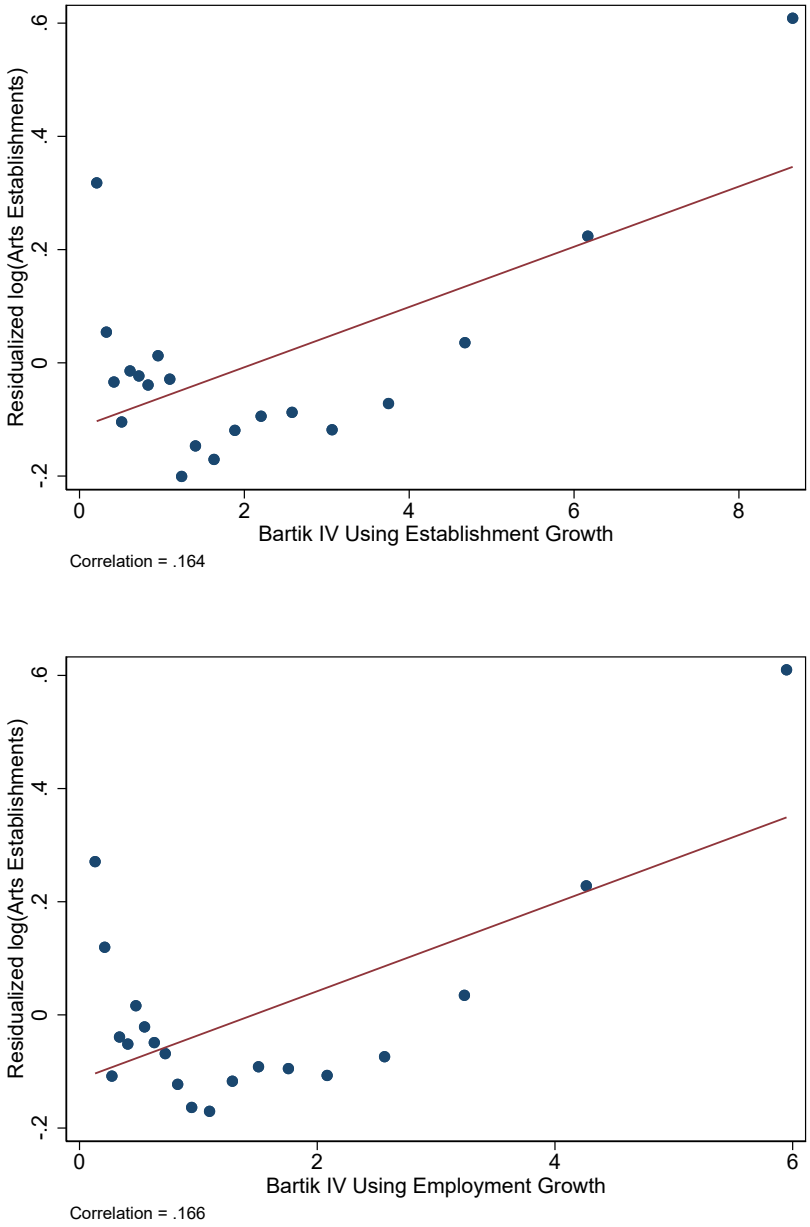
Notes.—Source: Quarterly Census of Employment and Wages (QCEW). The figure plots the average percent share number of total private establishments in the North American Industry Classification (NAICS) 71 classification in Panel A, and the number of arts establishments in Panel B, relative to total establishments in the county. NAICS 71 includes arts, sports, and recreation. Arts is defined as NAICS 71 netting out NAICS code 713, which includes recreation, but still retains spectator sports. The average share of establishments in Panels A and B are 1.58% and 0.35%, respectively.

Table 2: Capitalization Effects of Arts Employment Per Capita

Dep. var. =	log(House Price Index)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Arts Employment/Capita	15.05***	9.22***	9.18***	4.42***	7.54**	8.49***	1.36	15.40***
	[3.88]	[1.91]	[1.82]	[1.20]	[2.96]	[1.80]	[2.15]	[5.07]
× High Youth					2.62			
					[3.75]			
× High College						16.71*		
						[9.41]		
× High Over 100K							12.04***	
							[3.43]	
× High Population Density								-8.05
								[5.37]
Employment Growth			-.18***	-.04**	-.18***	-.18***	-.18***	-.18***
			[.02]	[.02]	[.02]	[.02]	[.02]	[.02]
Establishment Growth			.42***	.37***	.42***	.42***	.42***	.42***
			[.04]	[.03]	[.04]	[.04]	[.04]	[.04]
Population Growth			.64***	.34***	.64***	.64***	.64***	.64***
			[.09]	[.06]	[.09]	[.09]	[.09]	[.09]
R-squared	.01	.87	.87	.95	.87	.87	.87	.87
Sample Size	34848	34751	33668	33640	33668	33668	33668	33668
County FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Year FE	No	No	No	Yes	No	No	No	No

Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), and Census Bureau (2001-2022). The table reports the coefficients associated with regressions of the log house price index on the employment count in the arts divided by the population, conditional on the year-to-year growth rate in total employment, establishments, and population and county, year, and state × year fixed effects. Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.

Figure 4: First-stage Relationships Between Bartik Instruments and Arts Establishments



Notes.—Source: Quarterly Census of Employment and Wages (QCEW), and Census County-to-County Flows. The figure plots the residualized log number of arts establishments (obtained by regressing on county and year fixed effects) and the two variants of the Bartik instrument. The two variants are constructed using year-to-year establishment and employment growth in the "from county" (c') through the following formula: $BARTIK_{ct} = \sum_{c'} M_{c,c'} \times a_{c',t}$ where $a_{c',t}$ denotes the employment and establishment share of the arts in county c' at time t.

Table 3: Capitalization Effects of Arts Establishments Using a Bartik-like Instrument

Dep. var. =	log(House Price Index)			
	(1)	(2)	(3)	(4)
log(Arts Establishments)	.098***	.071***	.189***	.150**
	[.012]	[.009]	[.058]	[.070]
Employment Growth	.159***	.136***	-.017	-.045*
	[.045]	[.031]	[.023]	[.025]
Establishment Growth	.694***	.465***	.293***	.155***
	[.060]	[.055]	[.044]	[.051]
Population Growth	1.322***	.531***	.457***	.103**
	[.182]	[.093]	[.078]	[.041]
log(Inflows)	-.072***	-.061***	-.008	.020**
	[.011]	[.007]	[.009]	[.009]
R-squared	.08	-.04	-.42	-.23
Sample Size	33765	33737	33640	14714
F-stat	84.24	43.52	27.32	11.38
County FE	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
State x Year FE	No	Yes	Yes	Yes
Sample	Full	Full	Full	2014-2022

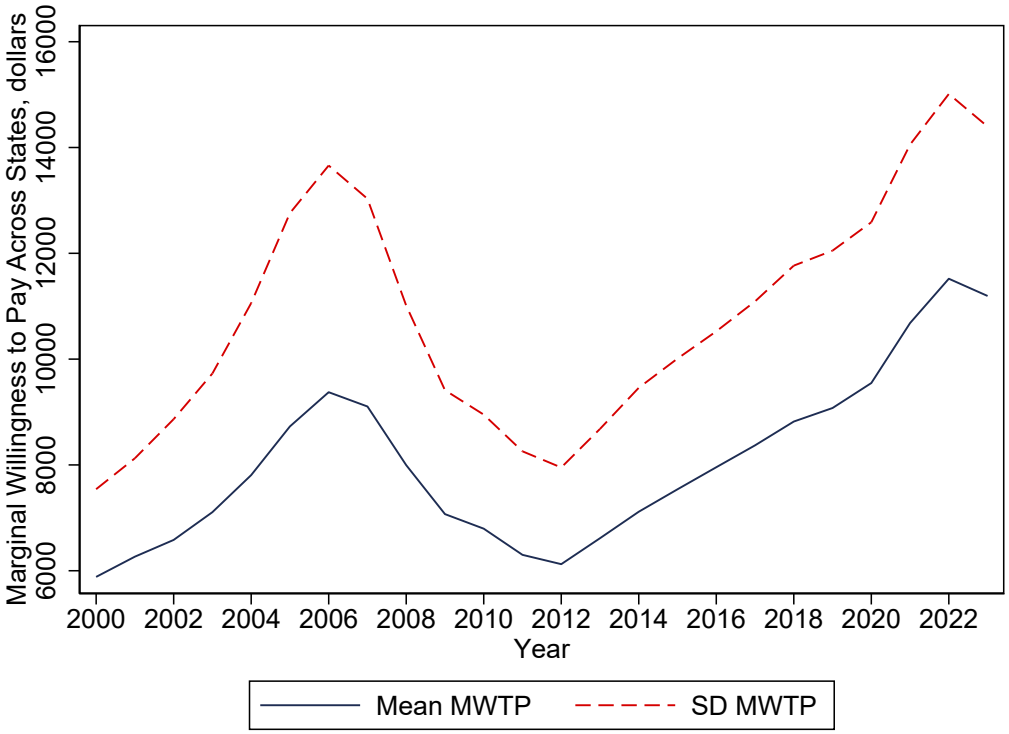
Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), and Census Bureau (2001-2022). The table reports the coefficients associated with regressions of the log house price index on the log number of establishments (log plus one to allow for zeros) instrumented using a Bartik-like measure that exploits county-to-county flows, conditional on the year-to-year growth rate in total employment, establishments, population, log migration inflows, and various tiers of fixed effects. The two variants are constructed using year-to-year establishment and employment growth in the "from county" (c') through the following formula: $BARTIK_{ct} = \sum_{c'} M_{c,c'} \times a_{c',t}$ where $a_{c',t}$ denotes the employment and establishment share of the arts in county c' at time t. Standard errors are clustered at the county-level.

Table 4: Robustness Using Heterogeneity in Arts Closures During the Pandemic

Dep. var. =	log(House Price Index)			
	(1)	(2)	(3)	(4)
log(Arts Establishments)	.049***	.034***	.032***	.036***
	[.002]	[.007]	[.006]	[.007]
× High Days of Arts Closures	.004	-.025***	-.026***	-.029***
	[.003]	[.008]	[.008]	[.008]
High Days of Arts Closures	-.080***			
	[.007]			
Employment Growth			.004	-.007
			[.019]	[.020]
Establishment Growth			.104***	.112***
			[.025]	[.026]
Population Growth			.195***	.198***
			[.027]	[.029]
R-squared	.11	.98	.98	.98
Sample Size	9429	9420	9420	9420
County FE	No	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes
Balancing Weight	No	No	No	Yes

Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), and COVID-19 US State Policy (2019-2022). The table reports the coefficients associated with regressions of the log house price index on the log number of establishments (log plus one to allow for zeros), conditional on the year-to-year growth rate in total employment, establishments, and population and county and year fixed effects. The balancing weight is obtained through the entropy balancing approach of Hainmueller (2012) regressing an indicator for whether the state is above the median in number of days that arts establishments, like theaters, were required to be closed (median = 73) on the employment share in information services, finance, insurance, and real estate, and the share of people earning over $100,000/year. Standard errors are clustered at the county-level.

Figure 5: Marginal Willingness to Pay, 2000-2024



Notes.—Source: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), Zillow, and Census Bureau (2001-2022). The figure reports the state population share in the nation and the standard deviation across states for the marginal willingness to pay (MWTP) over arts amenities. That is obtained by taking the product of the state-specific capitalization effect and the price of a single-family home. The average is weighted by the state population as a share of the nation (using 2014-18 Census data). House prices are normalized according to the personal consumption expenditure (PCE) deflator normalized to 2017 prices.

Table 5: Robustness Using Alternative Data on Public Arts Charities and House Prices

Dep. var. =	log(House Price Index)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
# Arts Establishments	.009***	.011***	.010***	.007***	.010***	-.009**	.005**	.015***
	[.001]	[.001]	[.001]	[.001]	[.002]	[.004]	[.003]	[.004]
× High Youth					.002			
					[.002]			
× High College						.021***		
						[.004]		
× High Over 100K							.007**	
							[.003]	
× High Population Density								-.004
								[.004]
R-squared	.01	.86	.93	.97	.86	.86	.86	.86
Sample Size	101805	100962	100930	86839	100962	100962	100962	100962
Zipcode FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Year FE	No	No	Yes	Yes	No	No	No	No
County x Year FE	No	No	No	Yes	No	No	No	No

Notes.—Sources: NCCS, Bogin et al. (2019), and Census Bureau (2000). The table reports the coefficients associated with regressions of the log house price index (zipcode) on the number of arts and culture charities, conditional on various layers of fixed effects (e.g., county, year, and both state × year and county × year fixed effects). Standard errors are clustered at the zip-level.

Table 6: Leveraging Quasi-Random Variation in Cultural District Designations

Dep. var. =	log(House Price Index)					
	(1)	(2)	(3)	(4)	(5)	(6)
log(Arts Establishments)	-.015***	.047**	.053***			
	[.005]	[.019]	[.020]			
Artists/Capita				-1.029	3.237	4.918
				[6.138]	[7.896]	[8.545]
Cultural District	.195***	.027	.027	.266***	.068***	.067***
	[.021]	[.023]	[.022]	[.015]	[.018]	[.018]
× Arts Establishments	.038***	.025***	.024***			
	[.007]	[.007]	[.007]			
× Artists/Capita				22.385**	19.946***	18.201**
				[10.731]	[7.373]	[7.726]
Employment Growth			.012			.057
			[.078]			[.085]
Establishment Growth			.184*			.178*
			[.102]			[.104]
Population Growth			.301**			.268*
			[.147]			[.145]
R-squared	.41	.86	.86	.40	.86	.85
Sample Size	2389	2386	2304	2389	2386	2304
County FE	No	Yes	Yes	No	Yes	Yes
Year FE	No	Yes	Yes	No	Yes	Yes
State x Year FE	No	No	No	No	No	No

Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Wagner and Portillo (2024), Bogin et al. (2019), and Census Bureau (2001-2022). The table reports the coefficients associated with regressions of the log house price index on the log number of establishments (log plus one to allow for zeros) and artists per capita, interacted with an indicator for whether the county was designated as a cultural district in the given year, conditional on the year-to-year growth rate in total employment, establishments, and population and county and year fixed effects. Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.

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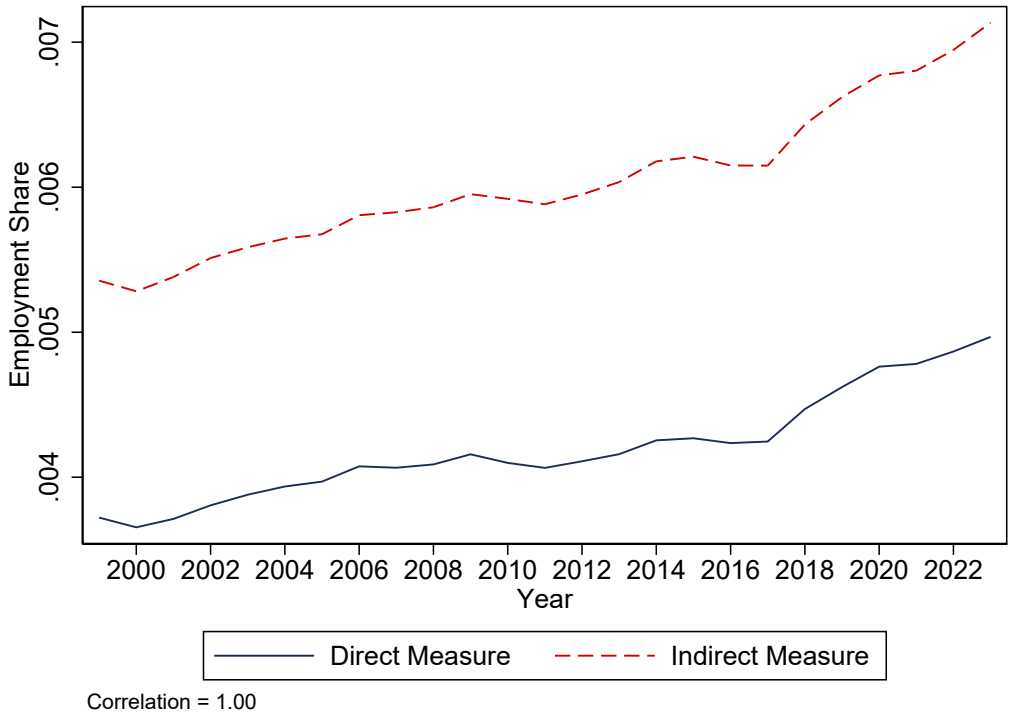
A Online Appendix

Table A.1: Summary Statistics

	Pooled		High Arts		Low Arts	
	(1)		(2)		(3)	
	mean	sd	mean	sd	mean	sd
House Price Index, 2000	148	44	155	49	141	38
Zillow Single Family Price	201613	155174	245023	187995	149426	74503
Arts Employment	347	1707	703	2409	16	33
Arts Establishments	34	296	67	424	2	2
Total Establishments	5261	15638	9904	21572	943	692
Total Employment	80893	210526	153212	285889	13629	11756
Total Wages	4.15e+09	1.40e+10	8.07e+09	1.95e+10	493594685	471078228
Population	182944	441132	337443	597254	39246	31186
Employment Growth	0.01	0.03	0.01	0.03	0.00	0.04
Establishment Growth	0.01	0.03	0.02	0.03	0.01	0.03
Population Growth	0.01	0.02	0.01	0.02	0.00	0.02
Male, %	0.50	0.02	0.49	0.01	0.50	0.02
White, %	0.83	0.15	0.80	0.15	0.85	0.14
Black, %	0.09	0.13	0.10	0.12	0.08	0.13
Married, %	0.51	0.06	0.49	0.06	0.52	0.06
Less than High School, %	0.11	0.05	0.10	0.04	0.13	0.05
High School, %	0.89	0.05	0.90	0.04	0.87	0.05
Some College, %	0.57	0.10	0.62	0.09	0.52	0.09
College, %	0.26	0.11	0.32	0.10	0.21	0.07
More than College, %	0.13	0.08	0.17	0.08	0.10	0.05
Observations	36475		17577		18898	

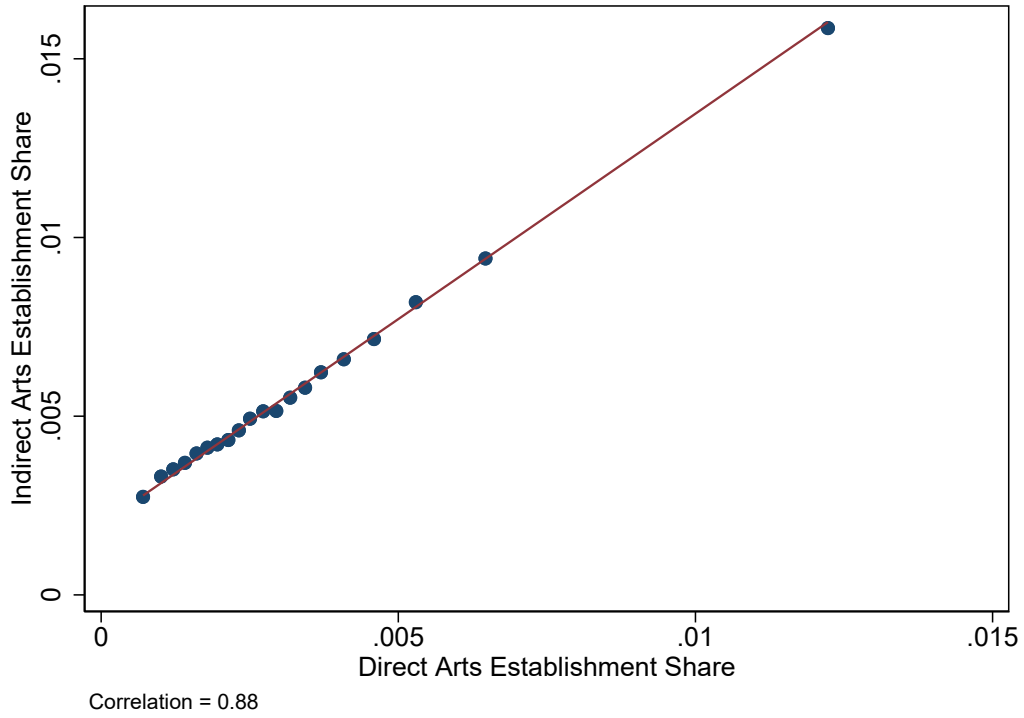
Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), and Census Bureau (2001-2022). The table reports the means and standard deviations of each of the variables: house price index (2000 basse year), house price for single family homes, employment in the arts, number of arts establishments, total establishments, total employment, average wages, population, employment growth, establishment growth, population growth, share male (from 2015-19 ACS), share White, share Black, share married, and the education distribution (less than high school, high school, some college, college, more than college). Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.

Figure A.1: Validating the Time Series Patterns of Indirect Arts Proxy



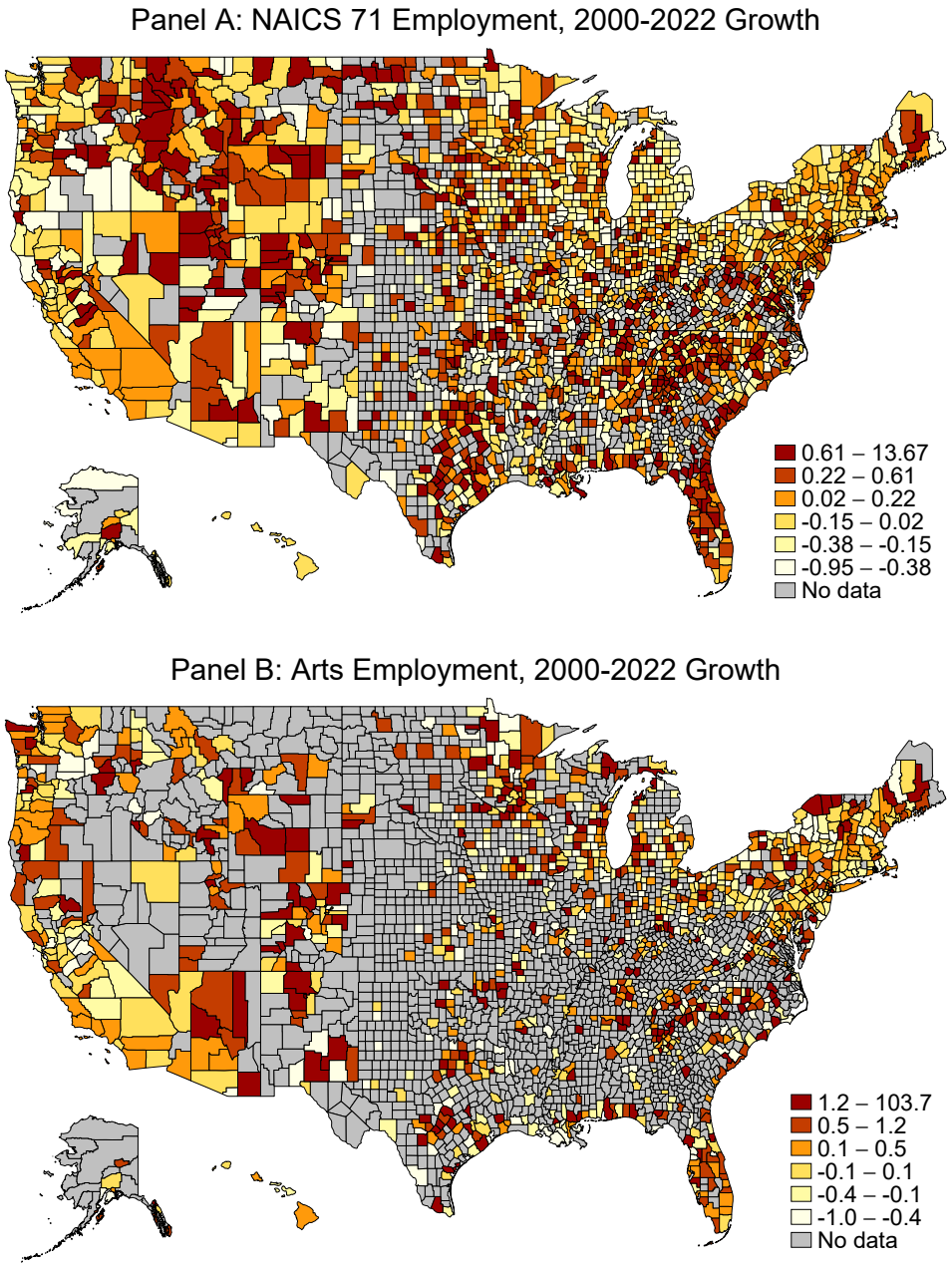
Notes.—Source: Quarterly Census of Employment and Wages (QCEW). The figure plots the proportion of arts establishments, as a share of the total, over time using two definitions. In the first definition, arts organizations are defined as: NAICS 7111 (Performing Arts Companies), NAICS 7115 (Independent Artists, Writers, and Performers), and NAICS 7121 (Museums, Historical Sites, and Similar Institutions). In the second definition, arts organizations are defined as NAICS 71 net of 713, which includes recreation, but still retains spectator sports.

Figure A.2: Validating the Cross-section of Indirect Arts Proxy



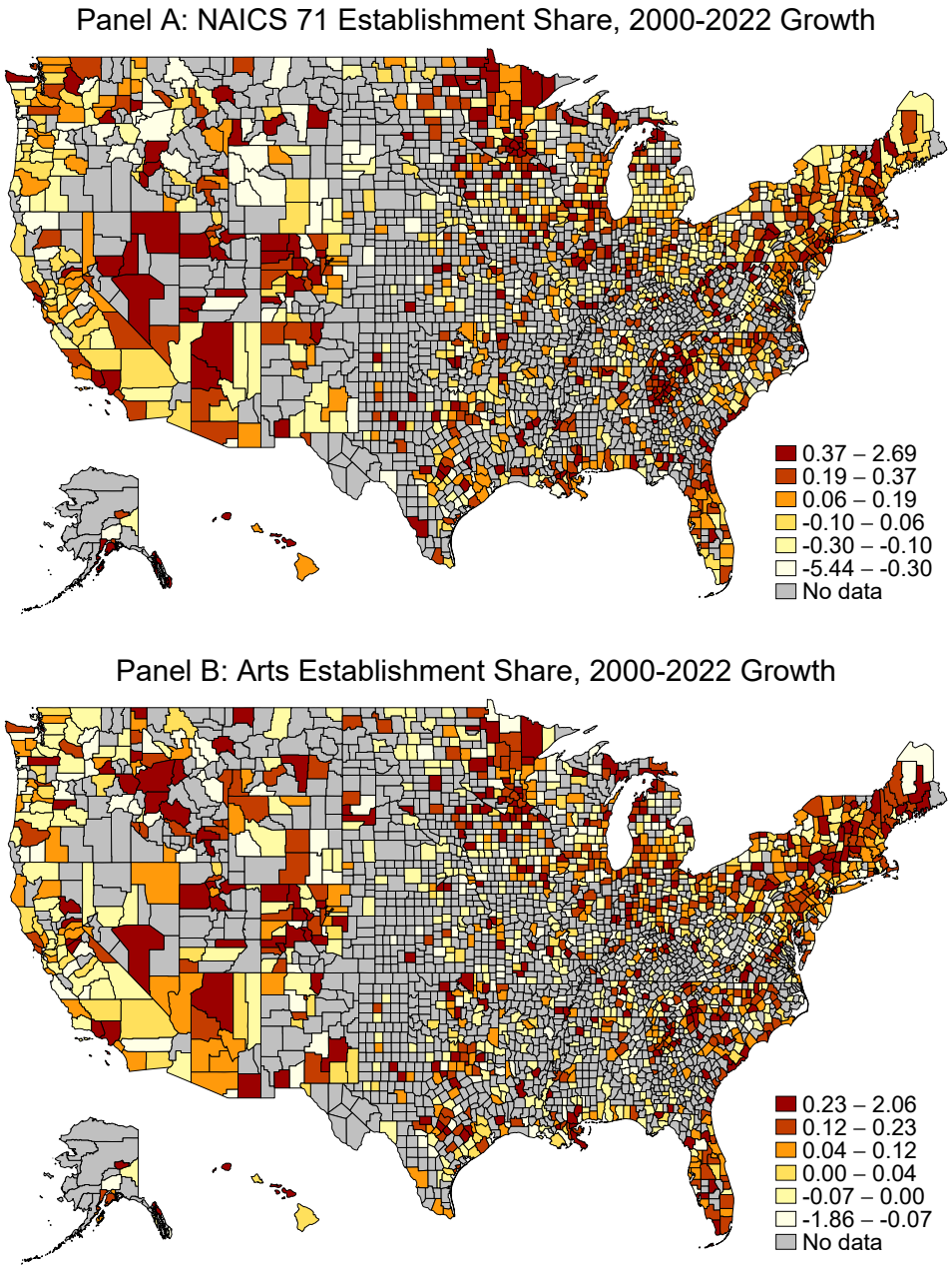
Notes.—Source: Quarterly Census of Employment and Wages (QCEW). The figure plots the proportion of arts establishments, as a share of the total, across counties using two definitions. In the first definition, arts organizations are defined as: NAICS 7111 (Performing Arts Companies), NAICS 7115 (Independent Artists, Writers, and Performers), and NAICS 7121 (Museums, Historical Sites, and Similar Institutions). In the second definition, arts organizations are defined as NAICS 71 net of 713, which includes recreation, but still retains spectator sports. The binscatter is restricted to the set of common counties over 2000-2022, which covers roughly 600-750 counties on a given year.

Figure A.3: Spatial Distribution of Growth in Number of NAICS 71 and Arts Establishments



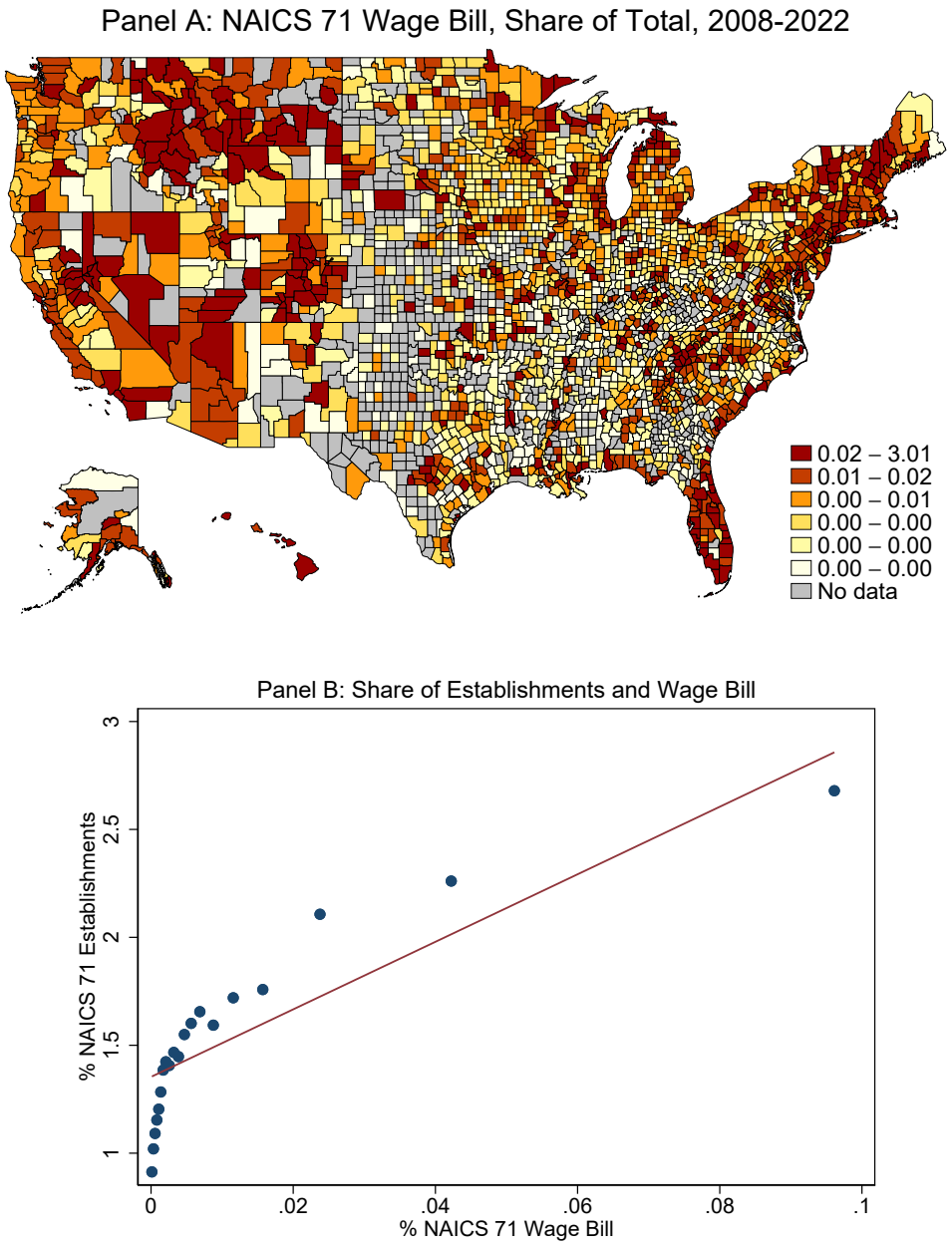
Notes.—Source: Quarterly Census of Employment and Wages (QCEW). The figure plots the growth rate between the 2000-05 and 2020-22 (average) in the number of employees in the North American Industry Classification (NAICS) 71 classification in Panel A, and the number of arts employees in Panel B. NAICS 71 includes arts, sports, and recreation. Arts is defined as NAICS 71 netting out NAICS code 713, which includes recreation, but still retains spectator sports. The average growth rates in Panels A and B are 0.19 and 0.86, respectively. The sample is restricted to private establishments only.

Figure A.4: Spatial Distribution of Growth in Share of NAICS 71 and Arts Establishments



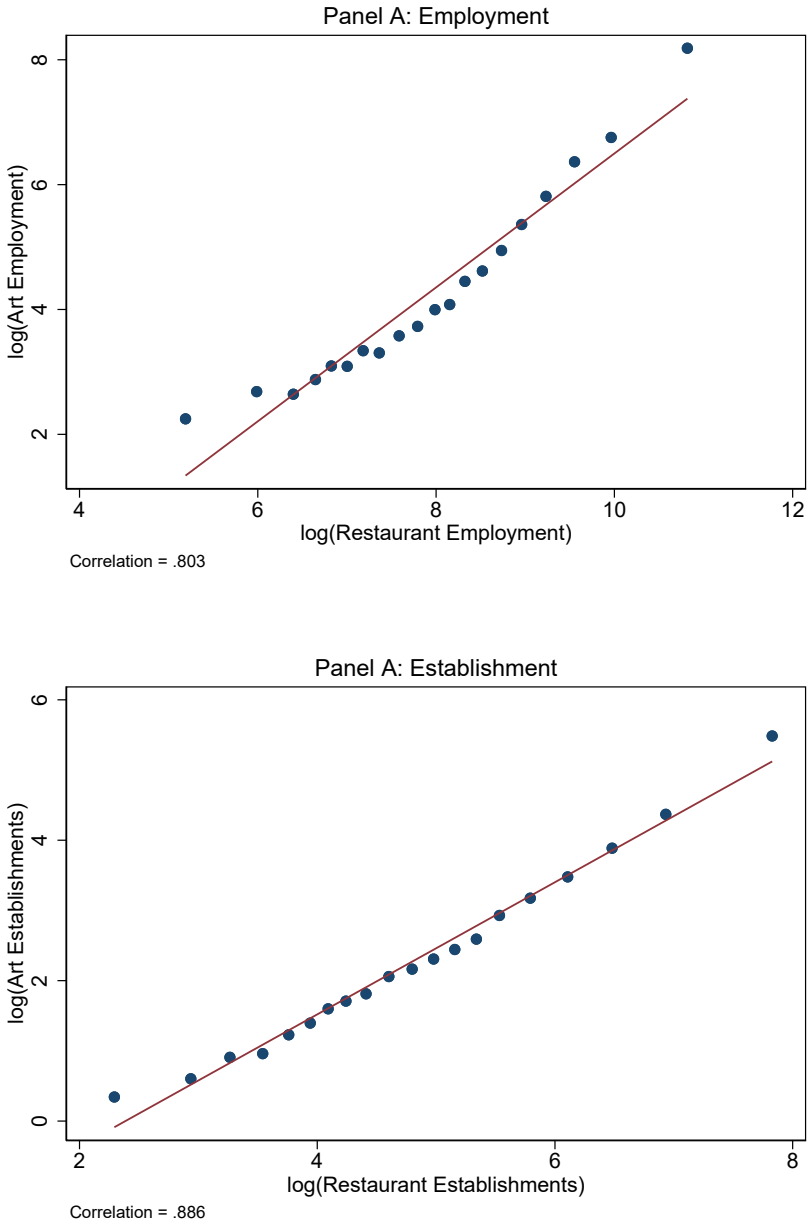
Notes.—Source: Quarterly Census of Employment and Wages (QCEW). The figure plots the percentage point change between the 2000-05 and 2020-22 (average) in the share of establishments in the North American Industry Classification (NAICS) 71 classification in Panel A, and the share of arts establishments in Panel B. NAICS 71 includes arts, sports, and recreation. Arts is defined as NAICS 71 netting out NAICS code 713, which includes recreation, but still retains spectator sports. The average percentage point change in the shares in Panels A and B are 0.036 and 0.066, respectively. The sample is restricted to private establishments only.

Figure A.5: Spatial Distribution of NAICS 71 Wage Bill Share



Notes.—Source: Quarterly Census of Employment and Wages (QCEW). The figure plots the average share of the wage bill (employment × average wage) of total private establishments in the North American Industry Classification (NAICS) 71 classification in Panel A, and a binscatter with the corresponding share in Panel B. NAICS 71 includes arts, sports, and recreation. The correlation between the two in Panel B, after excluding an outlier county that had a share of 3%, is 0.46.

Figure A.6: Binscatter of Arts and Restaurant Employment and Establishments



Notes.—Source: Quarterly Census of Employment and Wages (QCEW). The figure plots the average number of establishments and employment in the arts and restaurants/other eating places. Arts is defined as NAICS 71 netting out NAICS code 713, which includes recreation, but still retains spectator sports. Restaurants is defined as NAICS 7225. The sample is restricted to private establishments only.

Table A.2: Robustness on Capitalization Effects With Restaurant Controls

Dep. var. =	log(House Price Index)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(Arts Establishments)	.091***	.047***	.045***	.024***				
	[.006]	[.007]	[.007]	[.005]				
log(Restaurant Establishments)	-.060***	.339***	.319***	.168***				
	[.007]	[.020]	[.020]	[.014]				
Artist Employment/Capita					12.989***	2.978	3.240	1.530
					[4.673]	[2.490]	[2.471]	[1.523]
Restaurant Employment/Capita					2.365***	5.162***	5.171***	1.415***
					[.394]	[.644]	[.625]	[.403]
Employment Growth			-.015	-.057***			-.118***	-.095***
			[.028]	[.021]			[.031]	[.023]
Establishment Growth			.297***	.299***			.514***	.407***
			[.041]	[.042]			[.045]	[.044]
Population Growth			.597***	.231***			.658***	.250***
			[.084]	[.062]			[.088]	[.063]
R-squared	.06	.94	.94	.97	.03	.93	.93	.97
Sample Size	17918	17783	17783	17765	17918	17783	17783	17765
County FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
State x Year FE	No	No	No	Yes	No	No	No	Yes

Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), and Census Bureau (2001-2022). The table reports the coefficients associated with regressions of the log house price index on the log number of establishments (log plus one to allow for zeros), log number of restaurants/other eating places, artists per capita, and employment in restaurants per capita, conditional on the year-to-year growth rate in total employment, establishments, and population and county, year, and state × year fixed effects. Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.

Table A.3: Robustness on Capitalization Effects With Pollution Controls

Dep. var. =	log(House Price Index)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(Arts Establishments)	.045***	.098***	.095***	.049***				
	[.006]	[.017]	[.017]	[.011]				
log(PM2.5 Arithmetic Mean)	-.141***	.055***	.054***	.027**	-.125***	.057***	.056***	.029**
	[.022]	[.014]	[.013]	[.012]	[.022]	[.014]	[.013]	[.012]
Artist Employment/Capita					18.076***	15.534***	15.687***	5.912*
					[4.185]	[4.273]	[4.424]	[3.318]
Employment Growth			-.145*	.060			-.178**	.052
			[.079]	[.062]			[.077]	[.060]
Establishment Growth			.452***	.682***			.496***	.699***
			[.088]	[.106]			[.088]	[.107]
Population Growth			.496***	.401***			.457***	.382***
			[.139]	[.127]			[.141]	[.129]
R-squared	.07	.88	.88	.96	.04	.87	.87	.96
Sample Size	7894	7847	7426	7312	7894	7847	7426	7312
County FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
State x Year FE	No	No	No	Yes	No	No	No	Yes

Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Environmental Protection Agency (EPA), Bogin et al. (2019), and Census Bureau (2001-2022). The table reports the coefficients associated with regressions of the log house price index on the log number of establishments (log plus one to allow for zeros) and artists per capita, log arithmetic mean of particulate matter (PM) 2.5, conditional on the year-to-year growth rate in total employment, establishments, and population and county, year, and state × year fixed effects. Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.

Table A.4: Robustness of Capitalization Effects Using Single Family Home Price

Dep. var. =	log(Single Family Home Price)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(Arts Establishments)	.191***	.032***	.030***	.017***	.023***	.029***	.010*	.015**
	[.002]	[.004]	[.004]	[.003]	[.005]	[.004]	[.006]	[.007]
× High Youth					.013			
					[.008]			
× High College						.105*		
						[.056]		
× High Over 100K							.038***	
							[.008]	
× High Population Density								.022**
								[.009]
Employment Growth			-.063***	-.026*	-.063***	-.063***	-.063***	-.062***
			[.019]	[.014]	[.019]	[.019]	[.019]	[.019]
Establishment Growth			.339***	.149***	.338***	.338***	.338***	.338***
			[.036]	[.032]	[.036]	[.036]	[.036]	[.036]
Population Growth			.367***	.156***	.369***	.367***	.369***	.367***
			[.087]	[.045]	[.087]	[.087]	[.088]	[.088]
R-squared	.29	.97	.97	.98	.97	.97	.97	.97
Sample Size	43061	43045	42449	42406	42449	42449	42449	42449
County FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Year FE	No	No	No	Yes	No	No	No	No

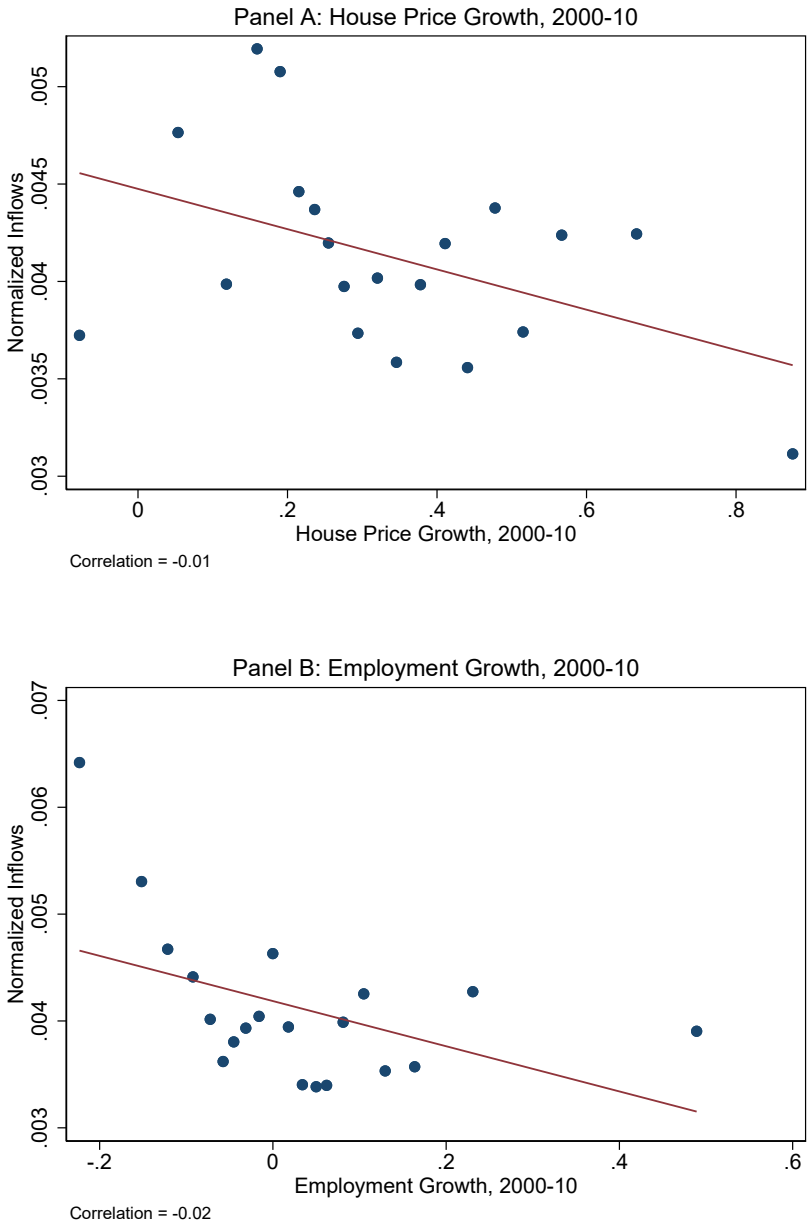
Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Zillow, and Census Bureau (2001-2022). The table reports the coefficients associated with regressions of the log single family home price on the log number of establishments (log plus one to allow for zeros), conditional on the year-to-year growth rate in total employment, establishments, and population and county, year, and state × year fixed effects. Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.

Table A.5: Robustness of Capitalization Effects Using High Tier Home Price

Dep. var. =	log(High Home Tier Price)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(Arts Establishments)	.157***	.050***	.047***	.019***	.033***	.046***	.004	.044***
	[.007]	[.006]	[.006]	[.005]	[.008]	[.006]	[.010]	[.015]
× High Youth					.024**			
					[.011]			
× High College						.075		
						[.052]		
× High Over 100K							.061***	
							[.012]	
× High Population Density								.004
								[.016]
Employment Growth			-.107***	-.027	-.108***	-.107***	-.105***	-.107***
			[.027]	[.022]	[.027]	[.027]	[.027]	[.027]
Establishment Growth			.361***	.215***	.357***	.361***	.360***	.361***
			[.038]	[.038]	[.038]	[.038]	[.038]	[.038]
Population Growth			.427***	.212***	.433***	.428***	.435***	.428***
			[.083]	[.054]	[.084]	[.084]	[.084]	[.084]
R-squared	.23	.97	.97	.99	.97	.97	.97	.97
Sample Size	29481	29363	28765	28716	28765	28765	28765	28765
County FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State x Year FE	No	No	No	Yes	No	No	No	No

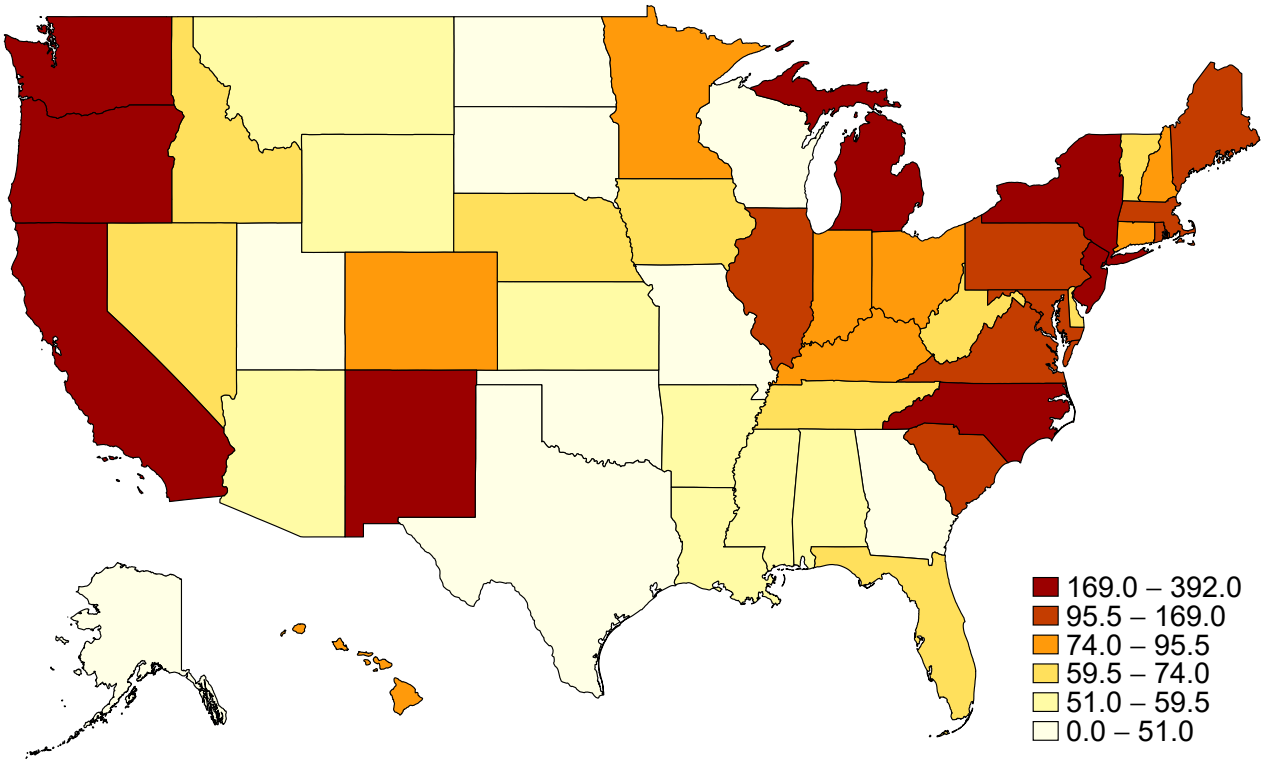
Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Zillow, and Census Bureau (2001-2022). The table reports the coefficients associated with regressions of the log high tier home price on the log number of establishments (log plus one to allow for zeros), conditional on the year-to-year growth rate in total employment, establishments, and population and county, year, and state × year fixed effects. Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.

Figure A.7: Examining the Exogeneity of the Bartik-like Shares



Notes.—Source: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), and Census County-to-County Flows. The figure plots the correlation between the normalized inflows for a county from the county-to-county flows data and the house price growth (normalized to 1990 index) and employment growth in a county between 2000 and 2010.

Figure A.8: Heterogeneity in Duration of State Closures of Arts Facilities and Theaters



Notes.—Source: COVID-19 US State Policy. The figure plots the number of days (duration) between the beginning of closures of arts facilities (e.g., theaters) and the reopening, by state, in 2020-21.

Table A.6: Robustness Using Historical Variation from the New Deal

Dep. var. =	log(House Price Index)			
	(1)	(2)	(3)	(4)
log(Arts Establishments)	.040***	.025***	.028*	.026*
	[.004]	[.006]	[.014]	[.014]
Male, %		.356	-.706	-.023
		[.646]	[.781]	[.465]
Married, %		-.709***	-.450	-.596*
		[.228]	[.324]	[.319]
Age Under 18, %		-1.406***	-1.776**	-1.536**
		[.506]	[.696]	[.646]
Age 25-34, %		-.623	-.570	-.157
		[.509]	[.544]	[.504]
Age 35-64, %		-.353	-.664	-.710*
		[.453]	[.536]	[.418]
Age 65+, %		.172	-.065	.288
		[.645]	[.630]	[.492]
White, %		-.265**	-.320***	-.149
		[.128]	[.124]	[.152]
Black, %		-.343***	-.382***	-.422**
		[.130]	[.146]	[.166]
College, %		-.868***	-.904***	-.895***
		[.153]	[.174]	[.161]
Over 100K/yr, %		1.138***	1.090***	1.191***
		[.158]	[.165]	[.157]
Avg Age, 1930				.012***
				[.003]
Female, % 1930				-.496
				[.320]
Black, % 1930				-1.242
				[1.218]
White, % 1930				-1.591
				[1.209]
Literate, %				-.572
				[.393]
Speaks English, %				-.430
				[.289]
R-squared	.28	.62	.60	.69
Sample Size	206	206	196	196
F-stat			7.21	5.70
Demographic Controls	No	Yes	Yes	Yes
1930 Controls	No	No	No	Yes
Has IV	No	No	Yes	Yes

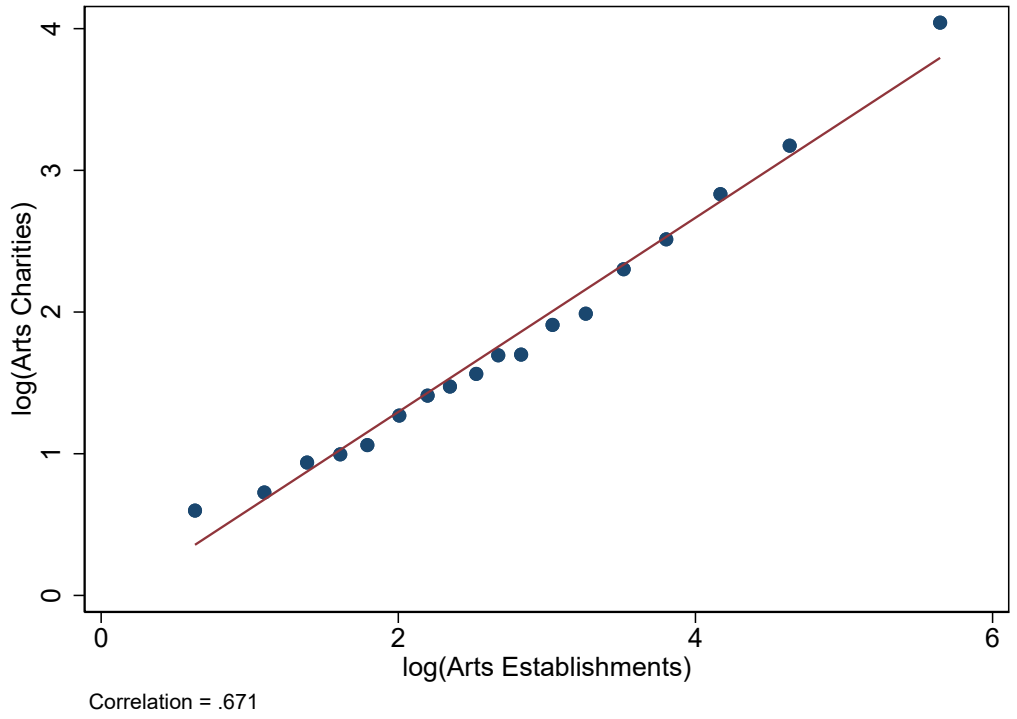
Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), Brounstein (2024), and American Community Survey (2005-2009). The table reports the coefficients associated with regressions of the log house price index on the log number of establishments (log plus one to allow for zeros), instrumenting arts establishments with New Deal funding for the arts, conditional on contemporaneous demographic factors and 1930 demographic controls. The sample is restricted to an average from 2000-2006. Current demographic controls include the following shares: male, married, age distribution (under 18, 25-34, 35-64, and 65+), White, Black, College, and earning over $100,000/year. Demographics from 1930s include: average age, female, White, Black, literate, and speaking English. These latter controls are obtained from Brounstein (2024) who also constructed the instruments: the New Deal funding that went to a city for the arts, arts employment, and arts employment share. I also take quadratics of these as instruments. Standard errors are clustered at the county-level.

Table A.7: Robustness Using Data on Public Arts Charities' Contributions and Revenues

Dep. var. =	log(House Price Index)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(Contributions)	.013***	.004***	.002***	.001***				
	[.001]	[.001]	[.000]	[.000]				
log(Program Revenue)					.011***	.002***	.002***	.002***
					[.001]	[.001]	[.001]	[.000]
R-squared	.01	.86	.93	.97	.01	.86	.93	.98
Sample Size	95879	94973	94939	81053	86359	85492	85459	72534
Zipcode FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
State x Year FE	No	No	Yes	Yes	No	No	Yes	Yes
County x Year FE	No	No	No	Yes	No	No	No	Yes

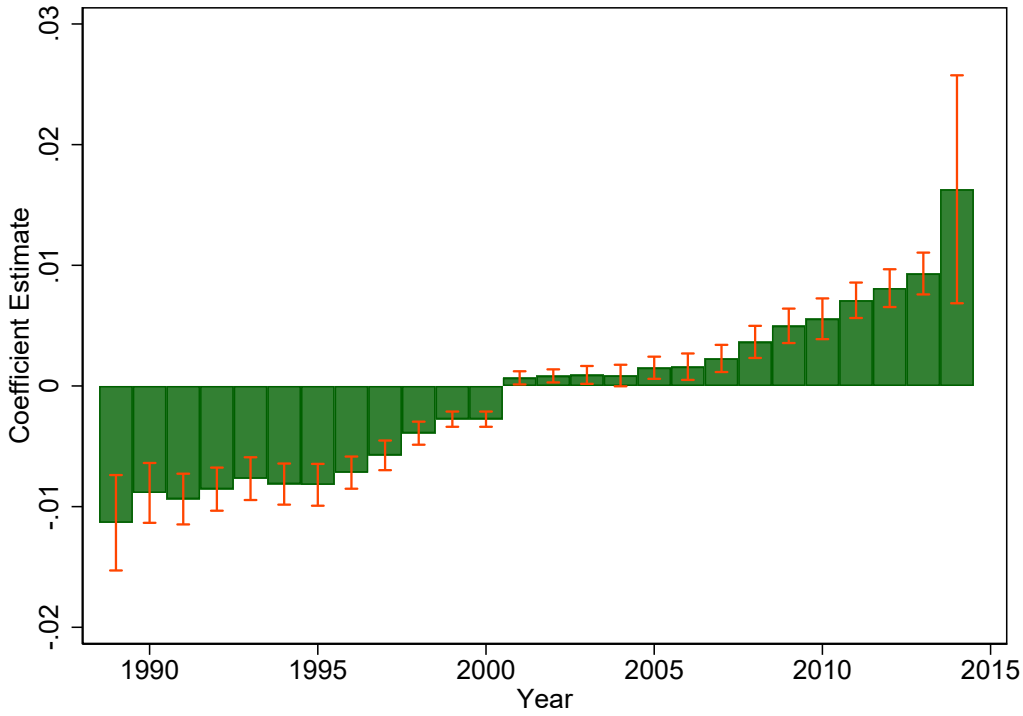
Notes.—Sources: NCCS, Bogin et al. (2019), and Census Bureau (2000). The table reports the coefficients associated with regressions of the log house price index (zipcode) on the log amount of contributions and program revenues, conditional on various layers of fixed effects (e.g., county, year, and both state × year and county × year fixed effects). Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.

Figure A.9: Correlation Across NCCS and QCEW Arts Measures



Notes.—Source: NCCS and QCEW (2000-2014). The figure reports the correlation across counties and years between the number of log arts establishments at the county level in the QCEW and the log number of arts charities in the NCCS.

Figure A.10: Heterogeneity in Capitalization Effects Over Time



Notes.—Source: NCCS and QCEW (2000-2014). The figure reports the coefficients associated with regressions of the log house price index (zipcode) on the number of arts and culture charities, conditional on county fixed effects, over each year. Standard errors are clustered at the zip-level.

Table A.8: Heterogeneity in Capitalization Effects by Growth in Housing Units (County)

Dep. var. =	log(House Price Index)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(Arts Establishments)	.048***	.053***	-.001	-.022**				
	[.005]	[.006]	[.009]	[.009]				
× High Unit Growth				.086***				
				[.011]				
Arts Employment/Capita					9.178***	10.772***	1.209	.088
					[1.824]	[2.228]	[2.859]	[3.177]
× High Unit Growth								11.444***
								[3.923]
Employment Growth	-.168***	-.157***	-.210***	-.167***	-.181***	-.172***	-.211***	-.181***
	[.024]	[.028]	[.044]	[.024]	[.024]	[.028]	[.044]	[.024]
Establishment Growth	.398***	.447***	.144**	.400***	.421***	.472***	.143**	.422***
	[.036]	[.041]	[.058]	[.036]	[.036]	[.041]	[.058]	[.036]
Population Growth	.672***	.699***	.620***	.685***	.643***	.667***	.623***	.642***
	[.095]	[.109]	[.161]	[.096]	[.092]	[.106]	[.161]	[.092]
R-squared	.88	.88	.87	.88	.87	.88	.87	.87
Sample Size	33668	27085	6583	33668	33668	27085	6583	33668
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample	All	High Growth	Low Growth	All	All	High Growth	Low Growth	All

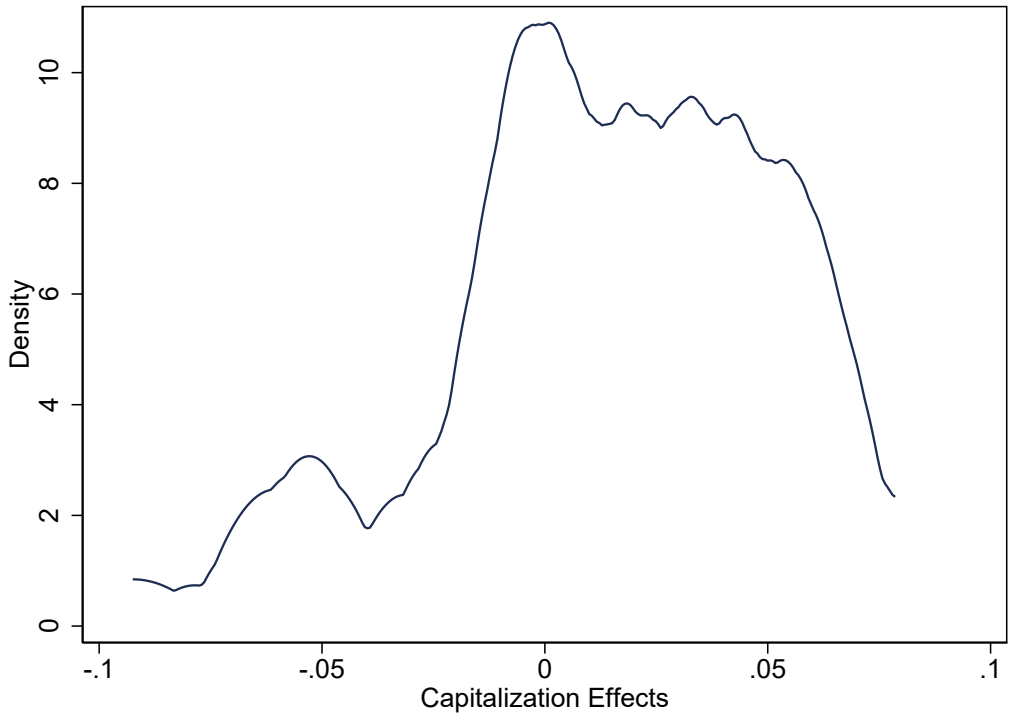
Notes.—Sources: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), and Census Bureau (2001-2022). The table reports the coefficients associated with regressions of the log house price index on the employment count in the arts divided by the population and log number of arts establishments, interacted or restricted to the subset of counties that rank above/below the growth in the number of housing units from the five-year 2005-09 and 2010-14 ACS, conditional on the year-to-year growth rate in total employment, establishments, and population and county, year, and state × year fixed effects. Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.

Table A.9: Heterogeneity in Capitalization Effects by Growth in Housing Units (Zipcode)

Dep. var. =	log(House Price Index)			
	(1)	(2)	(3)	(4)
# Arts Establishments	.0098***	.0091***	.0108***	.0106***
	[.0009]	[.0010]	[.0015]	[.0015]
× High Unit Growth				-.0011
				[.0017]
R-squared	.93	.94	.93	.93
Sample Size	100915	68436	32276	100915
County FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
State x Year FE	No	No	No	No
Sample	All	High Growth	Low Growth	All

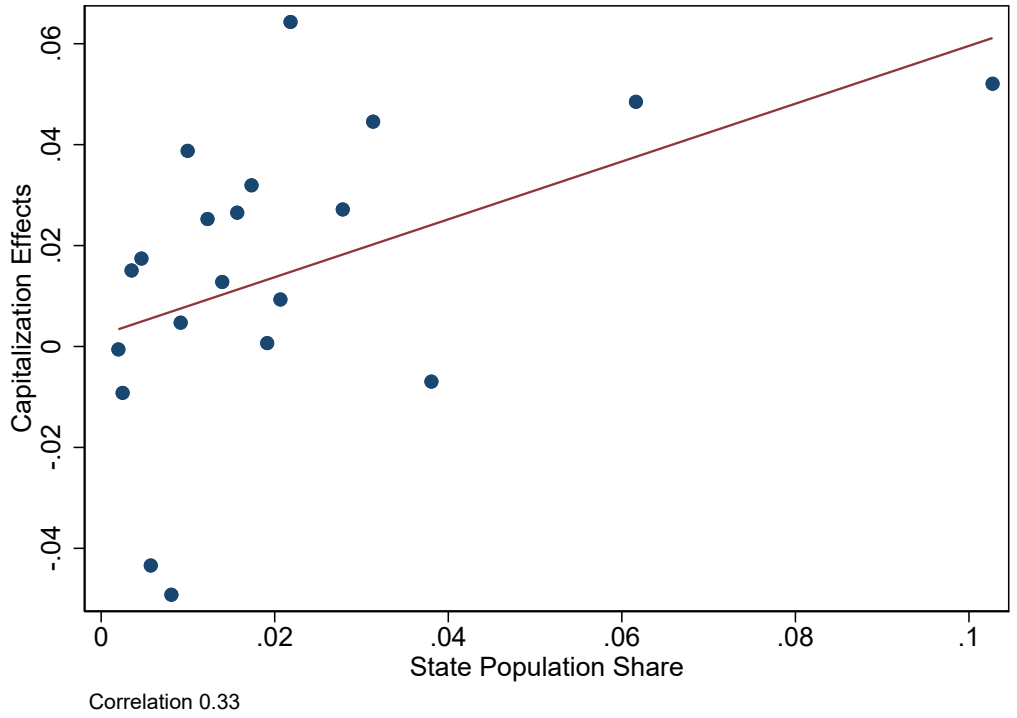
Notes.—Sources: NCCS, Bogin et al. (2019), and Census Bureau (2000-2014). The table reports the coefficients associated with regressions of the log house price index on the number of public arts and culture charities, interacted or restricted to the subset of zipcodes that rank above/below the growth in the number of housing units from the five-year 2007-11 and 2014-18 ACS, conditional on zipcode and state × year fixed effects. The five-year 2007-11 is used as the initial year since it is the first five-year ACS that contains zipcodes. Standard errors are clustered at the zipcode-level.

Figure A.11: Distribution of State-level Capitalization Effects



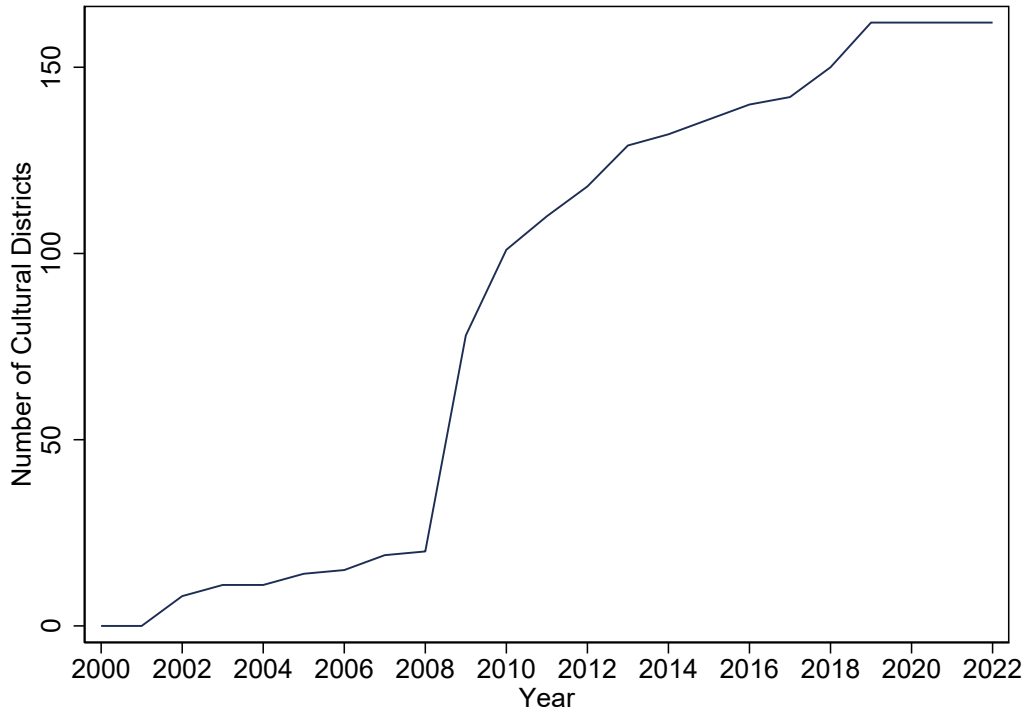
Notes.—Source: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), and Census Bureau (2001-2022). The figure reports the distribution of coefficients associated with regressions of the log house price index on the log number of establishments (log plus one to allow for zeros) separately by state, conditional on the year-to-year growth rate in total employment, establishments, and population and county and year fixed effects. Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.

Figure A.12: Relationship Between Capitalization Effects and Number of Counties in Sample



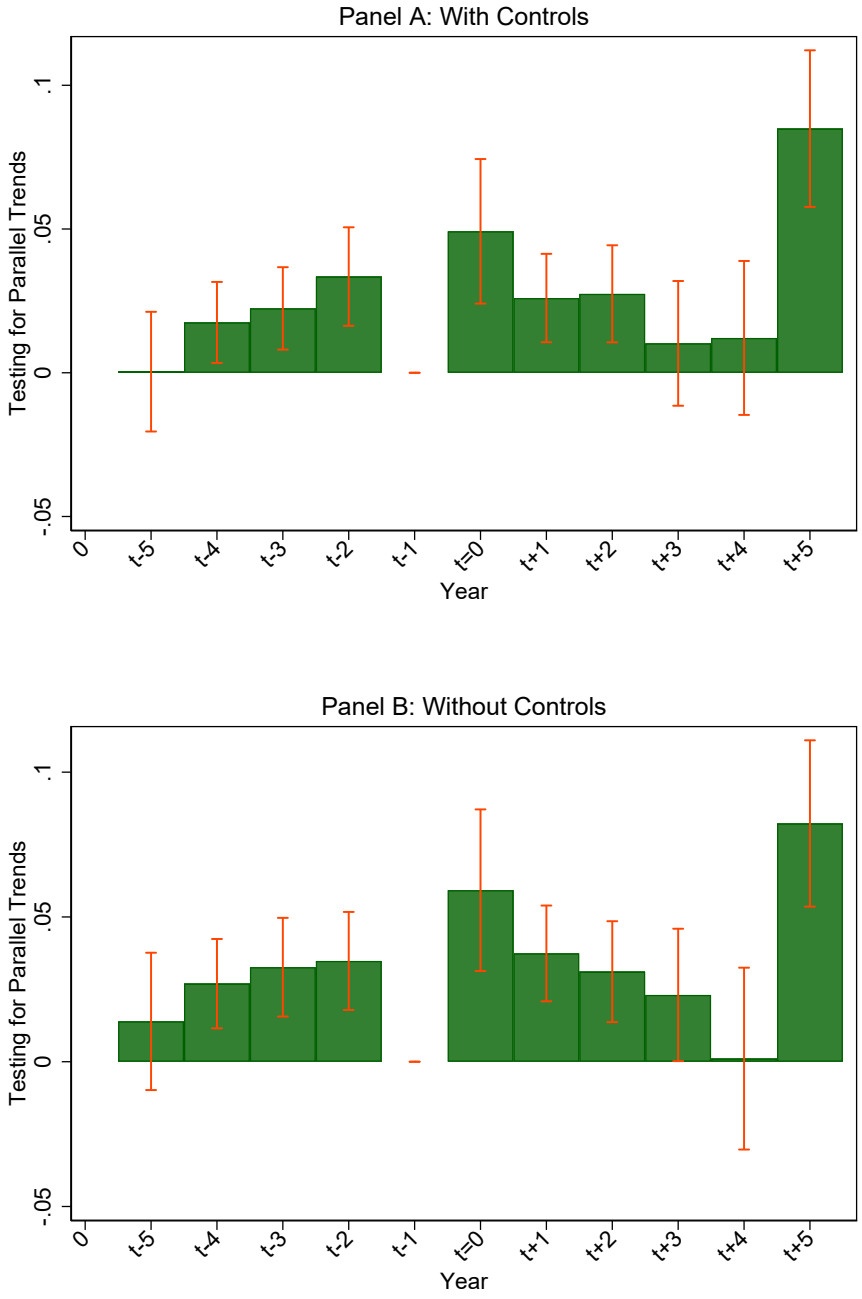
Notes.—Source: Quarterly Census of Employment and Wages (QCEW), Bogin et al. (2019), and Census Bureau (2001-2022). The figure reports the relationship between the capitalization effects (e.g., see Figure A.11) and state population as a share of the nation (using 2014-18 Census data).

Figure A.13: Time Series in the Number of Cultural Districts



Notes.—Source: Wagner and Portillo (2024). The figure plots the number of cultural district designations over time across the sample of counties in the data.

Figure A.14: Testing for Parallel Trends with Cultural Districts



Notes.—Source: Quarterly Census of Employment and Wages (QCEW), Wagner and Portillo (2024), and Bogin et al. (2019). The figures plot the coefficients associated with regressions of log house prices on five leads and lags on whether the county has been designated as a cultural district, omitting the first lag, conditional on log population, year-to-year growth rate in total employment, establishments, log population, and county and year fixed effects (Panel A), and unconditionally, just with the county and year fixed effects (Panel B). Growth rates are trimmed at the top and bottom percentiles. Standard errors are clustered at the county-level.