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by

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Immigrant Artists: Enrichment or Displacement?

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Abstract

In order to investigate the role of immigrant artists on the development of artistic clusters in U.S. cities, we use the U.S. Census and American Community Survey, collected every 10 years since 1850. We identify artists and art teachers, authors, musicians and music teachers, actors and actresses, architects, and journalists, their geographical location and their status as a native or an immigrant. We look at the relative growth rate of the immigrant population in these occupations over a ten year period and how it affects the relative growth rate of native-born individuals in these artistic occupations. We find that cities that experienced immigrant artist inflows, also see a greater inflow of native artists by about 40%.

JEL codes: J61, N30, Z11

I Introduction

Immigrants have played an outsized role in the development of art and culture in the United States. As indicated by US census reports, in 1880, foreign-born musicians comprised approximately 60% of all individuals reporting their occupation as musicians or music teachers in the U.S. During and after World War II, New York took over as the center of the modern art world, largely due to European immigration. At the same time, Boston became a center of architectural design, with well-known immigrant architects such as Walter Gropius on the faculty of the Harvard Graduate School of Design. While stories abound, the impact of immigrant artists on these developments has not been established formally. This paper seeks to measure the effect that immigrant artists have had on the growth of artistic occupations in U.S. cities.

The modern view is that the cultural and creative sectors are among the most dynamic sectors in the world economy and are arguably a substantial source of growth. As noted in the 2014 OECD Forum, "Creativity and innovation are now driving the economy, reshaping entire industries and stimulating inclusive growth." Furthermore, as the 2010 United Nations Conference on Trade and Development noted, creativity is seen as "the key ingredient for job creation, innovation and trade," and cultural sectors are believed to constitute opportunities for development. In this paper, we thus seek to understand the role of immigrants on these important sectors, and potentially,

the role of immigrant artists on the settlement and growth of cities in the United States. Our prior hypothesis is that like high technology (Kerr and Lincoln 2010), immigrant artists "crowd-in" native artists.

In order to study the effect, we use the 1% sample of the US Census and American Community survey, collected every 10 years since 1850, to identify individuals in the occupations of artists and art teachers, authors, musicians and music teachers, actors and actresses, architects, and journalists, as well as their geographical locations. By using such a long time series, we can explore very long term effects. We use the methodology described in Card and DiNardo (2001), measuring the effect of the relative growth of immigrant artists in the previous 10 year period, on the relative growth of the native artistic population. This approach diminishes the concern of spatial correlation between the levels of immigrant shares and levels of native shares due to common fixed influences. We find that an increase in the relative growth of the immigrant population of artists increases the relative growth of the native population of artists.

This paper proceeds as follows. In section II we briefly summarize the literature in the arts and labor markets. Section III describes our data and presents summary statistics. In section IV we present our methodology and in section V we present our results. Section VI interprets our findings and concludes the analysis.

II Immigration, Labor Markets, and The Arts

In this section we describe the numerous studies that have been undertaken regarding immigration, labor markets, and the arts in order to place our study in context. We start with a description of the most well-known and relevant studies on immigration, proceed to the concept of the artist as an innovator, then look at the arts as an occupation. We end this section with a description of papers on migration patterns and clusters of artists.

IIA Immigration

The role of immigration on native workers has been a topic widely studied by labor economists. While early studies were primarily concerned with the possibility of displacement effects of native low-skilled workers by immigrants (see, for example, Borjas (1987 and 1994), Card (1990 and 2001), and Card and DiNardo (2001)), more recent studies have focused on the effects of immigrants on innovation and technology clustering. In recent research in high technology industries (Kerr and Lincoln 2010), displacement effects have been ruled out, and small crowding-in effects have been documented. Employment and invention increases through the contribution of immigrants.

IIB Artists as Innovators

Artists have long been considered innovators. In a series of articles, Galenson and Weinberg studied the age at which artists did their best work, as indicated by sale price at subsequent auction. They termed artists who were young when their best work was created as "conceptualists" and artists who were older as "experimentalists." Both innovated, but were different types of innovators. Specifically, in their study of American artists that were born between 1900 and 1940 (Galenson and Weinberg 2000), they largely termed artists that were born between 1900 and 1920, a large portion of whom are known as abstract expressionists, as experimentalists, and those born between 1920 and 1940 largely as conceptualists – who produced their best work at a younger age.

IIC Art as an Occupation

Alper and Wassall (1998) were some of the first economists to use panel data to explore artists and their occupations. They used the National Science Foundation's National Survey of College Graduates (NSCG) to determine whether or not artists were more likely than individuals in other occupations to change jobs. Andrew Smith (2000) used the 1970 Census to determine the propensity for individuals to move in and out of artistic occupations. Alper and Wassall (2006) went on to study employment and earnings of American artists using decennial US Census data from 1940 to 2000.

IID Migration and Clustering of Artists

Borowiecki and O'Hagan (2010 and 2012) have studied migration patterns of music composers and geographic clustering (Borowiecki 2013). New York is a major work location for composers; the fifth most important city for composers born in the 19th century, and the second most popular destination for 20th century composers, after Paris. They find that composers have remarkable mobility. 27% of the top composers have moved permanently abroad during their life, while 59% migrated internally since the 12th century. O'Hagan and Hellmanzik (2008) found that the predominant location for visual artists born in the first half of the 20th century is New York City, with most prominent American artists clustering there.

This paper asks whether this clustering is good or bad for native-born American artists.

III The Data

The primary dataset we use for our analysis is the 1% sample of the US Census and American Community Survey, provided by the Integrated Public Use Microdata Series – USA (IPUMS-USA). This comprehensive decennial population census provides a large array of variables, collected every 10 years, and since 1850 includes also information on the occupational status of individuals (OCC1950). This variable is used in order to identify the following

occupations for household heads: artists and art teachers, authors, musicians and music teachers, actors and actresses, architects, and journalists, including editors and reporters. The Census data also contain information on the geographical locations of the individual artist as well as their place of birth. We use country of birth to identify immigrants versus native-born Americans.

Figure I demonstrates the growth and importance of artistic employment during the late nineteenth and twentieth centuries. In terms of total employment, artistic employment is nontrivial, increasing to about .1% of all occupations by the end of the 20th century. The share of musicians and music teachers is especially high and takes off during the late 20th century reaching .7%, with the other occupations showing stable or more modest growth.

Figure II shows the importance of immigrants to these occupations. As is evident, a very high share of individuals in artistic occupations have immigrated from abroad. While the North American population consists in general of a high share of foreign-born individuals, the share of immigrants reached 60% of musicians in 1880. By the 1960s, the share of immigrants in artistic occupations converges to the average for all household-heads, with the exception of actors, where the fraction remains about 7-8 percentage points higher.

For our analysis, we break down populations by cities. During this

period, the relative population, and even existence of cities, changed tremendously. To demonstrate this change and to present the variables that we will be using in the paper, Table I provides summary statistics on the variables by breaking up the period into pre- and post-1920. As would be expected, population growth of both immigrants and natives was greater pre-1920 than post-1920. Furthermore, the relative growth of the artistic population was greater earlier than later. While the proportion of immigrants was greater pre-1920, the average number of teachers and clergymen was greater post-1920 (both variables have been obtained from the occupation record in the Census).

We focus on household heads as they were typically the decision makers, and hence also took the decisions about location. This is important for an unbiased geographic analysis.

IV Methodology

A common challenge in estimating the effects of local labor market variation in immigrant populations on the native population is the problem of spatial correlation. This would not be the case if immigrants were randomly allocated across local labor markets. However, it is likely that levels of immigrant shares and levels of native shares may be spatially correlated because of common fixed influences, leading to a positive or negative statis-

tical correlation between immigrant and native concentrations, even in the absence of any genuine effects of immigration. Elimination of common fixed influences could be achieved by using changes in native concentrations and relating them to changes in immigrant concentrations. This is the approach we pursue below.

The primary variable that we focus on is proportion of artists in a city, P_{ac}, relative to the total population in a city P_c.[1] We decompose changes in this proportion into changes that are driven by the immigrant population (M) and changes that are driven by the native population (N), so that $P_c = M_c + N_c$. As is standard in the labor literature (e.g. Card and DiNardo 2001), the natural log of the change in the proportion of artists to the total population is then approximately

$$\Delta \ln P_{ac}/P_c = (\Delta M_{ac}/P_{ac} - \Delta M_c/P_c) + (\Delta N_{ac}/P_{ac} - \Delta N_c/P_c) \qquad (1)$$

The first term is the relative growth rate of immigrants in the artist population and the second is the relative growth rate of natives in the artist population. So, the total growth rate of artists relative to the entire population is that sum of these two parts.

As is usual, we then propose that natives react as follows to immigrant

[1] Agglomeration research typically identifies cities as the relevant spatial unit to study labor market effects, for example, Rosenthal and Strange (2001) and Ellison, Glaeser and Kerr (2010).

inflow:

$$(\Delta N_{ac}/P_{ac} - \Delta N_c/P_c) = a + b(\Delta M_{ac}/P_{ac} - \Delta M_c/P_c) + \eta_{ac} \qquad (2)$$

where η_{ac} is an error term.

By substitution, the overall change in the log population share of artists can be written as:

$$\Delta \ln P_{ac}/P_c = a + (1 + b)(\Delta M_{ac}/P_{ac} - \Delta M_c/P_c) + \eta_{ac} \qquad (3)$$

If $b < 0$ then native outflows occur if there are immigrant inflows, and if $b = -1$, then native outflows exactly offset immigrant inflows. If b = 0, then population changes of natives are not affected by the relative inflow rate of immigrants. If b > 0, then native inflows increase with immigrant inflows. Hence, we can test for the effect of immigrant inflows on the native artist occupation.

When estimating equation 2, we plan to first use plausibly exogenous covariates to account for the possibility that a simple first-differenced specification may not sufficiently capture the dynamics of population change. (As noted before, using relative growth rates may partially mitigate other possible influences.) Specifically, we include the relative growth of the native artistic population over a preceding period (i.e., the lagged dependent variable) and the lagged proportion of immigrants. We then also include measures of city

population growth and lagged city population growth.

One concern with the above specification is that demand shocks that are specific to cities and artists can deter or attract both native and immigrant artists from a particular city. This selective settlement would lead to a downward biased estimate. An additional problem in the calculation of immigrant concentrations at the city level is measurement error. This is likely to be the case in a study that is based on a survey of relatively small sample size, or when using differenced and within groups estimation.

A possible solution to the problems above is to use measures of *historic settlement patterns* as an instrument for the relative growth rate of the immigrant artistic population. Given the long time series of the chosen census, we are able to measure historic settlement patterns with the previous 10-year proportionate change in immigrant population.[2] The underlying identification assumption is that immigrants in artistic occupations will be attracted to areas that see increases in the number of individuals with the same cultural and linguistic background as themselves, inducing immigrants in artistic occupations to settle in areas with fast growing immigrant populations.

We propose also a second instrumental variable, inspired by "The Brain of the Nation", written by Gustave Michaud in 1904. In his article, Michaud sets the aim to depict geographic spread of intellectual and artistic talent for American States in 1900 and provides efforts to identify "the laws which

[2]We are grateful to Joel Waldfogel for this helpful suggestion.

obtain in the distribution of intellectuality". Based on samples of contemporaneous famous people of literary, artistic, or scientific backgrounds, Michaud arrives at the conclusion that immigrants may be roughly divided into two categories: those who "wished to improve their position through the acquisition of property, and those who wished above all to enjoy religious freedom." While the first category of immigrants - those motivated by economic factors - are the populations typically modeled in labor economics, the second category - those pulled by *religious liberty* - are often ignored. As such, the underlying paper provides novel insights on and the first test of Michaud's hypothesis from 1904.

We approximate religious freedom with clergymen, specifically the lagged number of clergymen, obtained from the occupation variable in the Census. The assumptions necessary for identification with this instrument are similar to our above assumptions; the lagged number of clergymen is correlated with the relative growth rate of immigrant artists, but only influences the relative growth rate of natives in artistic occupations through artistic immigrants.[3]

[3]During the covered time period in the United States executing art was not forbidden nor encouraged by organized religion as it may have been the case during the hegemony of the Church during the Middle Ages.

V Estimation

We estimate equation 3 in several ways. In the first part of this section we present OLS estimates using a pooled sample and controlling for occupation, and then estimating each artistic occupation separately. In the second part of the section, we present our instrumental variable regressions.

VA Ordinary Least Squares Estimation

Using a pooled sample of all artist occupations and then controlling for occupation, we present the results in Table II. Our variable of interest is the relative growth of the immigrant population in each of the artistic occupations and how that effects the relative growth of the native population in each of the artistic occupations. We construct this variable by census city, taking the relative change (relative to the total city population) in each of the artistic populations over a 10 year period. As shown in Table I, although we begin with over 35,000 city-periods, this quickly drops when we look at the number of individuals in each artistic occupation in each city in this 1% sample, as many city-10-year time periods have no individuals in these artistic occupations. When we difference for growth rates, we are left with 4,298 observations. In column 1, without using any controls we find that on average, the relative growth of the immigrant population in artistic occupations does not effect the relative growth of the native population in the artistic occupations.

In column 2, we add two lags: the relative growth rate of the native artistic population in the previous 10 year period, and the lagged proportion of immigrants in the previous 10 year period. When the lagged variables are added, the relative growth of immigrant artists positively effects the relative growth of native artists. The magnitude of the OLS results indicate that for each 10% increase in the immigrant population we would have about a 5% increase in the native population. This effect persists and increases to 7% when we add year fixed effects and state fixed effects (column 3), or extend further by the change in the total city population and the lagged change in the total city population (column 4).

When broken out by artist occupation, our regression results from the estimation of equation 3 look as in Table III. None of the individual coefficients on the relative growth of the immigrant artistic population for each occupation differ significantly from the average estimates. Furthermore, the coefficients for the artists and musicians sample are positive and significant at the 1% level, the coefficients on the architect sample are positive and significant at the 5% level, and on author and journalist, the coefficients are positive and significant at the 10% level. The only insignificant coefficient is found in the actors regression in which there are only 53 observations. Immigration by people in artistic occupations does not crowd out, but rather crowds in, native artists.

VB Instrumental Variables Estimation

Table IV presents our Instrumental Variable results, using the proportionate change in the immigrant population in the past 10 years, as a measure of historical settlement patterns, and using the lagged number of clergymen, as a proxy for religious freedom. As would be expected, all specifications indicate that immigration in artistic occupations is positively and significantly related to overall immigration, though the coefficient of interest is imprecisely estimated when just the clergy measure is used as an instrument. In column 6, when using both instruments, we continue to find a strong positive and statistically significant impact of the relative growth of immigrant artists on the relative growth of native artists. The magnitude of the IV-coefficient in this specification indicates that for each 10% increase in the immigrant population we would have about an 8% increase in the native population.

VC The channel: Internal migrants or new artists?

The observed positive and enforcing relationship between migrant and native populations of artists is interesting, but raises the question whether the native population increase is due to internal migration (for example, U.S. born artists moving from the midwest to New York) or rather as a result of uptake of artistic jobs by locals. For this reason we re-estimate the models for relative growth rates of artistic natives who were born in another place (i.e., internal migrants) and artistic natives born in the same place (i.e., stayers). The

results are presented in Table V.

The estimation indicates that both the relative growth rate of internal migrants (columns 3-4) and stayers (columns 5-6) increase with higher relative growth rates of immigrants (columns 1-2 show the baseline model, which is the sum of migrants' and stayers' estimated rates). The association is stronger for internal migrants, which may reflect the fact that migration streams, whether from abroad or internally, follow a similar direction. The point estimates with stayers is nonetheless meaningful and highly significant: a 10% higher relative growth rate of the immigrant population increases the relative growth rate of locals in arts by up to 3.4 %. This is an important result that signifies the complementarity between foreign migrants and native stayers, and supports the hypothesized role that immigrants have played on the development of local arts clusters.

VD Robustness tests

A number of concerns can be raised in relation to the previous estimates. First, the number of teachers in artistic occupations increased rapidly after 1920, and an important question is whether it is the number of teachers or the proportion of teachers in the overall population that is driving the estimates. As Table VI shows, while the teacher population does have in both specifications a positive effect on the relative growth of the native artistic population, our results are not significantly different when controlling for

teachers.

A second concern is that artists may be attracted to areas that are more racially and ethnically diverse, or simply large cities. The significance of racial or ethnic diversity could have an impact on the integrity of our instrument - the proportionate change in the immigrant population. Perhaps artists are attracted to areas directly because of the number of immigrants, which also results in racial or ethnic diversity. Therefore, we introduce an additional control for ethnic diversity, which is calculated as the probability that two individuals taken at random from our sample represent a different race. We also introduce an analogous measure for country of birth diversity.[4] In order to account for the role of large cities, we introduce a control variable measuring the city size or drop the largest cities. As Table VII shows, racial diversity and city size are positively related with the relative growth of native artistic population, albeit the former variable is significant only at the 10% level (columns 1 and 2). However, these additional controls have no effect on our baseline estimates, which are also robust to the dropping of particularly large cities (columns 3 and 4).

[4]More formally, our diversity measure constitutes the standard Gini-Simpson index, which is equal to $\sum_{n=i} p_i^2$, where p_i represents the proportion of each race. Our country of birth diversity index is calculated in analogy, but considers country of birth instead of race.

VI Discussion and Conclusion

This paper seeks to measure the effect that immigrant artists have had on the growth of artistic occupations in U.S. cities. The historical data allows us to look for very long term effects. We find that immigrants have played an outsized role in the development of art and culture in the United States, by crowding in, rather than crowding out, native artists. The results indicate that cities which experienced an inflow of migrant artists, see also an inflow of native artists.

These results could be due to several factors. First, with more migrant artists a city may become more vibrant and diverse, increasing its attractiveness and stimulating knowledge spillovers (Glaeser et al. 1992). Second, the findings could be related to economies of scale: with a greater supply of artistic output, the average price per unit of output decreases. For example, with more musicians there can be staged more concerts in the local concert hall, which leads to a drop in price of an average concert. These effects are non-negligible due to the typically very high fixed costs of cultural infrastructure. Third, at play could be also economies of scope, leading to lower production costs if a higher variety of goods are produced. Staying with the example of the concert hall: the venue can be used for other artistic ventures, such as performing arts (involving actors) or to stage opera (musicians).

All in all, the results provide new insights on the complementary role

of migrants, who have likely stimulated the development of local arts and cultural scenes, which have with time developed to international, important art clusters.The findings in the paper support thus the view that immigrants have indeed enriched and strengthened the development of the United States.

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VIII Figures

Figure I: Share of Creatives by Creative Occupation

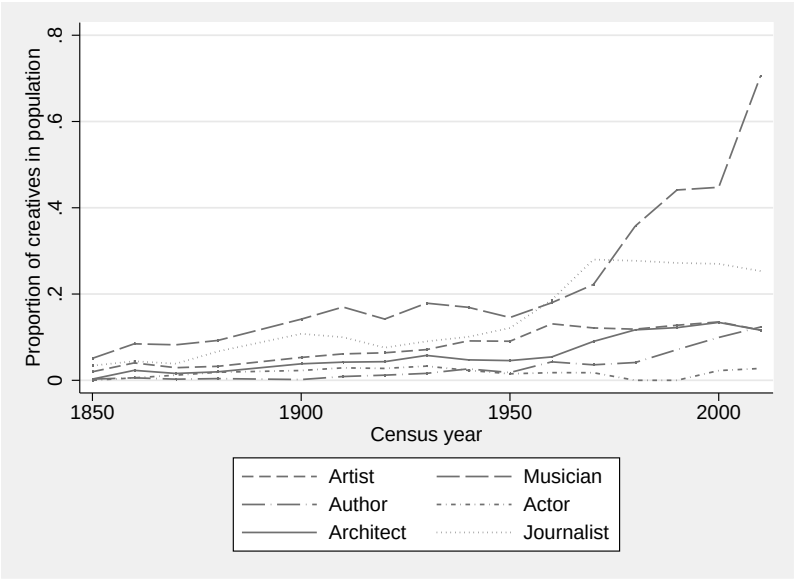
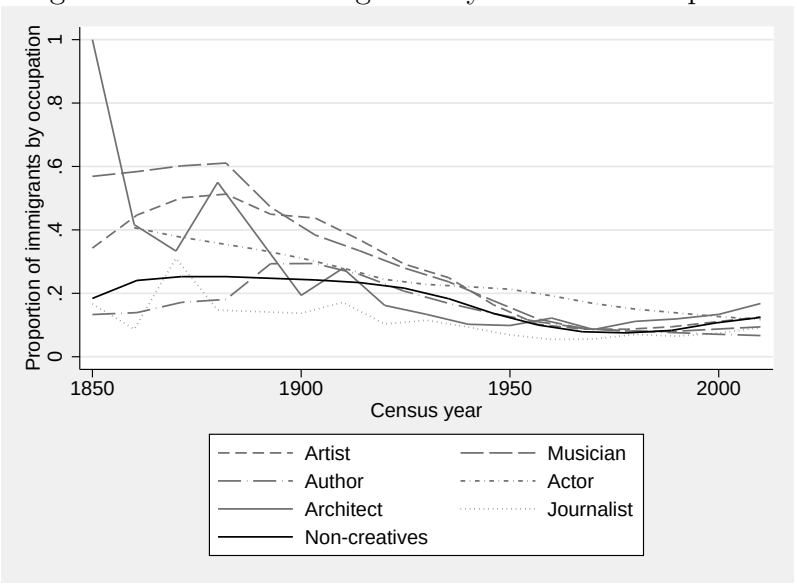


Figure II: Share of Immigrants by Creative Occupation



IX Tables

Table I: Summary Statistics

	(1) pre-1920	(2) post-1920	(3) Overall
	Percentage growth		
A. Total population growth			
Immigrants	0.110	0.027	0.035
	(0.171)	(0.060)	(0.082)
Natives	0.199	0.141	0.147
	(0.152)	(0.228)	(0.222)
Total	0.309	0.168	0.182
	(0.244)	(0.252)	(0.255)
B. Relative growth of artistic population			
Immigrants	0.141	0.012	0.003
	(0.484)	(0.333)	(0.354)
Natives	0.291	0.026	0.052
	(0.609)	(1.238)	(1.192)
Total	0.432	0.013	0.055
	(0.543)	(1.298)	(1.250)
C. Control and instrumental variables			
Proportion of immigrants	0.336	0.098	0.123
	(0.432)	(0.225)	(0.265)
City population growth	0.499	0.388	0.423
	(0.672)	(0.670)	(0.672)
D.log(Immigrant population)	0.070	0.108	0.075
	(1.035)	(1.744)	(1.489)
Clergymen (in thousands)	0.057	0.368	0.258
	(0.164)	(0.795)	(0.663)
Teachers (in thousands)	0.048	2.797	1.821
	(0.179)	(8.742)	(7.144)
Proportion of teachers	0.0040	0.0151	0.0112
in overall population	(0.0102)	(0.0136)	(0.0135)

Note: Standard deviations in parentheses.

Table II: Relative Growth of the Native and Immigrant Artistic Population

	(1)	(2)	(3)	(4)
	Relative growth of native artistic population			
	OLS			
Relative growth of immigrant artistic population	0.0513	0.553***	0.681***	0.681***
	(0.0513)	(0.0942)	(0.0986)	(0.0985)
Lagged relative growth of native artistic population		-0.185***	-0.186***	-0.184***
		(0.0285)	(0.0288)	(0.0287)
Lagged proportion of immigrants		1.058***	1.324***	1.309***
		(0.150)	(0.176)	(0.176)
City population growth				0.101
				(0.0806)
Lagged city population growth				-0.147***
				(0.0563)
Constant	0.177***	-0.220**	-0.138	0.107
	(0.0560)	(0.0954)	(1.397)	(1.400)
Observations	4,298	1,980	1,975	1,975
R-squared	0.007	0.064	0.094	0.099
Occupation controls	✓	✓	✓	✓
Year controls			✓	✓
State controls			✓	✓

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table III: Relative Growth of the Native Artistic Population by Occupation

	(1) Artist	(2) Author	(3) Musician	(4) Actor	(5) Architect	(6) Journalist
Relative growth of immigrant artistic population	0.875***	0.645*	0.363***	-0.0451	0.529**	0.447*
	(0.245)	(0.371)	(0.132)	(0.447)	(0.223)	(0.234)
Lagged relative growth of native artistic population	-0.176***	-0.315***	-0.116***	-0.0874	-0.288***	-0.235***
	(0.0651)	(0.105)	(0.0444)	(0.223)	(0.0840)	(0.0657)
Lagged proportion of immigrants	1.728***	0.920*	0.615***	1.204*	1.163***	1.001**
	(0.491)	(0.475)	(0.191)	(0.660)	(0.330)	(0.417)
City population growth	0.249	0.113	-0.0147	-0.202	0.190	0.146
	(0.236)	(0.234)	(0.104)	(0.315)	(0.155)	(0.140)
Lagged city population growth	-0.217	-0.147	-0.124**	-0.844**	-0.111	-0.112
	(0.198)	(0.198)	(0.0602)	(0.315)	(0.111)	(0.0775)
Constant	-0.751***	-0.155	-0.156**	-0.0184	-0.435***	-0.321***
	(0.152)	(0.128)	(0.0613)	(0.272)	(0.0836)	(0.0738)
Observations	370	204	553	53	363	437
R-squared	0.077	0.077	0.045	0.227	0.087	0.057
Year controls	✓	✓	✓	✓	✓	✓
State controls	✓	✓	✓	✓	✓	✓

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table IV: Instrumental Variable: Historic Settlement Patterns and Religious Freedom

	(1)	(2)	(3)	(4)	(5)	(6)
	Relative growth of immigrant artistic population			Relative growth of native artistic population		
	OLS			IV		
Relative growth of immigrant artistic population				0.766***	4.649**	0.793***
				(0.182)	(1.952)	(0.182)
D.log(Immigrant population)	0.0699***		0.0696***			
	(0.00254)		(0.00255)			
Lagged Clergymen (in thousands)		0.0166***	0.00711			
		(0.00564)	(0.00479)			
Lagged relative growth of native artistic population	-0.00168	-0.0155**	-0.00211	-0.183***	-0.126***	-0.182***
	(0.00567)	(0.00666)	(0.00567)	(0.0283)	(0.0478)	(0.0283)
Lagged proportion of immigrants	-0.480***	-0.936***	-0.485***	1.388***	4.993***	1.412***
	(0.0337)	(0.0349)	(0.0339)	(0.224)	(1.823)	(0.224)
City population growth	-0.0370**	0.0172	-0.0352**	0.100	0.0475	0.0998
	(0.0160)	(0.0187)	(0.0160)	(0.0792)	(0.111)	(0.0792)
Lagged city population growth	0.00540	0.00414	0.00463	-0.147***	-0.171**	-0.148***
	(0.0111)	(0.0131)	(0.0111)	(0.0554)	(0.0762)	(0.0554)
Constant	0.163	0.491	0.177	-0.0323	-1.856	-0.0448
	(0.276)	(0.325)	(0.276)	(0.868)	(1.491)	(0.869)
Observations	1,975	1,975	1,975	1,975	1,975	1,975
R-squared	0.508	0.316	0.508	0.099	0.068	0.098
Cragg-Donald Wald F statistic	754.6	13.1	378.6			
Occupation controls	✓	✓	✓	✓	✓	✓
Year controls	✓	✓	✓	✓	✓	✓
State controls	✓	✓	✓	✓	✓	✓

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table V: Natives: Internal Artistic Migrants or Local-Born Artistic Stayers

	(1)	(2)	(3)	(4)	(5)	(6)
	Relative growth of native artistic population		Relative growth of native artistic migrants		Relative growth of native artistic stayers	
	Baseline, OLS	Baseline, IV	OLS	IV	OLS	IV
Relative growth of immigrant artistic population	0.681***	0.766***	0.427***	0.430***	0.254***	0.337***
	(0.0985)	(0.182)	(0.0594)	(0.110)	(0.0652)	(0.120)
Lagged relative growth of native artistic population	-0.184***	-0.183***	-0.0702***	-0.0701***	-0.114***	-0.113***
	(0.0287)	(0.0283)	(0.0173)	(0.0171)	(0.0190)	(0.0188)
Lagged proportion of immigrants	1.309***	1.388***	0.736***	0.739***	0.572***	0.649***
	(0.176)	(0.224)	(0.106)	(0.135)	(0.116)	(0.148)
City population growth	0.101	0.100	0.0716	0.0716	0.0297	0.0285
	(0.0806)	(0.0792)	(0.0486)	(0.0478)	(0.0534)	(0.0525)
Lagged city population growth	-0.147***	-0.147***	-0.114***	-0.114***	-0.0329	-0.0334
	(0.0563)	(0.0554)	(0.0340)	(0.0334)	(0.0373)	(0.0367)
Constant	0.107	-0.0323	0.427	0.109	-0.319	-0.141
	(1.400)	(0.868)	(0.845)	(0.524)	(0.927)	(0.575)
Observations	1,975	1,975	1,975	1,975	1,975	1,975
R-squared	0.099	0.099	0.089	0.089	0.067	0.066
Occupation controls	✓	✓	✓	✓	✓	✓
Year controls	✓	✓	✓	✓	✓	✓
State controls	✓	✓	✓	✓	✓	✓
Cragg-Donald Wald F statistic						

Standard errors in parentheses. Instrument: D.log(Immigrant population)
*** p<0.01, ** p<0.05, * p<0.1

Table VI: Robustness Tests: Controlling for Teachers

	(1)	(2)
	Relative growth of native artistic population	
	OLS	IV
Relative growth of immigrant artistic population	0.665***	0.735***
	(0.0984)	(0.182)
Teachers (in thousands)	0.0057***	0.0056***
	(0.0018)	(0.0018)
Proportion of teachers in overall population	-9.252	-9.269
	(7.385)	(7.254)
Lagged relative growth of native artistic population	-0.190***	-0.189***
	(0.0287)	(0.0283)
Lagged proportion of immigrants	1.267***	1.332***
	(0.176)	(0.225)
City population growth	0.0979	0.0971
	(0.0808)	(0.0794)
Lagged city population growth	-0.151***	-0.151***
	(0.0563)	(0.0553)
Constant	0.248	-0.0143
	(1.397)	(1.347)
Observations	1,975	1,975
R-squared	0.104	0.104
Occupation controls	✓	✓
Year controls	✓	✓
State controls	✓	✓

Standard errors in parentheses
Instrument: D.log(Immigrant population)
*** p<0.01, ** p<0.05, * p<0.1

Table VII: Robustness Tests: Racial Diversity, Country of Birth Diversity and City Size

	(1)	(2)	(3)	(4)
	Relative growth of native artistic population			
	Whole sample		Dropped: New York, Los Angeles & Chicago	
	OLS	IV	OLS	IV
Relative growth of immigrant artistic population	0.671***	0.736***	0.680***	0.769***
	(0.0989)	(0.185)	(0.103)	(0.192)
Racial diversity	0.691*	0.706*		
	(0.404)	(0.399)		
Country of birth diversity	-0.0996	-0.119		
	(0.336)	(0.333)		
City size (in millions)	0.0115**	0.0113**		
	(0.00583)	(0.00574)		
Lagged relative growth of native artistic population	-0.190***	-0.189***	-0.189***	-0.187***
	(0.0287)	(0.0283)	(0.0298)	(0.0294)
Lagged proportion of immigrants	1.269***	1.332***	1.322***	1.407***
	(0.180)	(0.233)	(0.187)	(0.240)
City population growth	0.113	0.112	0.100	0.0984
	(0.0823)	(0.0809)	(0.0847)	(0.0832)
Lagged city population growth	-0.139**	-0.139**	-0.149**	-0.150**
	(0.0567)	(0.0557)	(0.0606)	(0.0595)
Constant	0.297	0.0233	-0.104	0.0384
	(1.409)	(1.355)	(1.510)	(1.019)
Observations	1,975	1,975	1,851	1,851
R-squared	0.105	0.105	0.100	0.099
Occupation controls	✓	✓	✓	✓
Year controls	✓	✓	✓	✓
State controls	✓	✓	✓	✓

Standard errors in parentheses. Instrument: D.log(Immigrant population)
*** p<0.01, ** p<0.05, * p<0.1