



Does culture affect local productivity and urban amenities?^{☆,☆☆}



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ABSTRACT

Does a better cultural milieu make a city more livable for residents and improve its business environment for firms? I compute a measure of cultural specialization for 346 U.S. metropolitan areas and ask if differences in cultural environment across cities capitalize into housing price and wage differentials. Simple correlations replicate standard results from the literature: cities that are more specialized in cultural occupations enjoy higher factor prices. Estimations using time-series data, controlling for city characteristics and correcting for endogeneity weaken the magnitude of this effect. Even though the arts and culture might be appealing to some people and firms, such determinants are not strong enough to affect factor prices at the city level.

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1. Introduction

This paper asks if a better cultural milieu can improve the attractiveness of a city. Cities like Paris, London and New York tend to be more attractive partially because of their cultural vitality. But are these differences strong enough to be considered as relevant determinants of the location of firms and residents? To answer this question, I evaluate how culture shapes the relative demand for a city by estimating hedonic rent and wage equations. Using a large sample of U.S. metropolitan areas between 2005 and 2011, the empirical analysis shows that cultural determinants are not strong enough to affect factor prices at the city level.

Cultural policies are increasingly considered as drivers of economic growth and urban recovery. Famous contributions by Richard

Florida (Florida, 2002a,b; Florida and Mellander, 2010) popularized the idea that culture positively affects city attractiveness. Accordingly, the presence of artists and *creative* people tends to attract highly-educated and talented workers, which in turns favor the expansion of skill-intensive and innovative industries. Theories in the spirit of Florida (2002a,b) received extraordinary attention from policy makers and the media. However, they are also sharply criticized by academic researchers due to major limitations (Glaeser, 2005; Markusen, 2006; Montgomery, 2005; Hoyman and Faricy, 2009; Sawicki, 2003; Marcuse, 2003; Peck, 2005). First, they often fail to provide well-defined and exhaustive measures of the cultural intensity of places. Second, they rarely take account of the impact of other city-specific characteristics that might also influence the location of economic agents. Third, they do not consider potential problems of reverse causality between cultural variables and economic outcomes.

This paper addresses these three limitations and questions the existing empirical literature on this topic. I propose a measure of cultural employment based on the type of tasks performed by employees. I restrict this measure to occupations that are intrinsically oriented towards the production of non-tradable cultural goods and services since only these potentially affect the utility of residents and firms at the local scale. Next, I estimate hedonic wage and rent equations to evaluate the impact of this variable on urban productivity and consumption amenities. I control for the impact of natural, political and other location-specific variables by including a full set of factors that could influence the location of economic agents.

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^{☆☆} Appendix A and Appendix B at the end of the paper report the main tables, figures and data sources. Appendix C, which contains Tables C.1 to C.8 that provide further descriptive statistics and robustness checks, is not published but is available in the discussion paper version at: <http://boulamb.weebly.com/research>.

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Lastly, I correct for the endogenous determination of cultural supply by implementing an instrumental variable strategy. I use the annual amount of federal grants received by individual artists and art organizations in each city as an instrument for cultural vitality.

The simplest specifications recover findings from existing literature (Florida and Mellander, 2010; Sheppard et al., 2006; Clark and Kahn, 1988). In the cross-section of American cities, estimates report a positive effect of culture on city attractiveness. Further empirical investigations using time-series data and controlling for city-specific characteristics reduce the estimated effect of culture on factor prices. Estimations that correct for endogeneity ultimately reveal that the effect of culture becomes negligible. I conclude that the standard positive effect associated with culture captures the impact of omitted variables and results from the simultaneous determination of culture, wages and rents. This interpretation is supported by various additional checks.

2. Identification strategy

To determine how differences in the cultural landscape across cities affect the location of people and firms, I rely on the identification strategy proposed by Roback (1982). In this model, firms and households are perfectly mobile across locations. At a spatial equilibrium, therefore, all agents are indifferent among locations.

This inter-city model of location is used to evaluate how residents and local firms value localized amenities. We can indeed allow indirect utility and profits to be possibly affected by a city specific attribute that varies across cities. The latter is defined as a consumption amenity as long as it positively affects consumer's utility and as a productive amenity when it enhances firms productivity and therefore economic profits. In the presence of a consumption amenity, any increase in the level of amenity must be compensated either by a decrease in wages or by a rise in land rents to eliminate workers' incentives to move to this city. Residents then incur a loss in purchasing power but benefit from the presence of the amenity in the city. In the case of a production amenity, incentives to move are arbitrated away either by a rise in wages or in rents: firms' costs are higher in the city but the location remains attractive thanks to the valuable amenity.

We can easily derive from this framework the hedonic rent and wage equations that describe the relationship between urban amenities and these two factor prices. The analysis of the rent equation allows determining the overall effect of culture: the fact that high-amenity cities experience higher rents suggests that demand for these locations is higher. The wage equation helps us to determine if this overall effect is dominated by the impact on firms or households. A negative impact on wages mirrors the fact that workers are willing to give up wages to live in high-amenity cities. In contrast, higher wages imply that firms can sustain higher land and labor costs in such high-amenity cities, reflecting the fact that it is a productive amenity. Therefore, the Roback (1982) model provides a very suitable identification procedure for assessing how households and firms are affected by inter-city differences in their cultural environment. Table A.1 summarizes the main results of this model in the case of positive or negative amenities in both consumption or production.

Table A.1
Analysis of the hedonic wage and rent equations.

	Wages	
	>0	<0
Rents	>0	<0
	Production amenity	Consumption amenity
	Consumption disamenity	Production disamenity

3. Data

I use recent Occupational Employment Statistics (OES) from the U.S. Bureau of Labor Statistics (BLS) describing employment for 372 U.S. Metropolitan Statistical Areas between 2005 and 2011. The occupational classification system (SOC) reports employment statistics based on the type of tasks performed by workers. Employment data are then disaggregated into 22 major working activities which are in turn broken down into 840 detailed occupations. Markusen (2006) or Glaeser et al. (2001) show that existing measures of cultural employment based on broad occupational categories can face major limitations. Therefore, I delineate cultural employment by inspecting each detailed occupation. In addition, I restrict cultural occupations to tasks that are mainly oriented towards the production of goods and services that are non traded and therefore mostly locally consumed. This includes for instance art teachers, curators, museum technicians, conservators or librarians.¹ I compute the annual share of cultural workers in total labor force for 346 Metropolitan Statistical Areas² (MSA), covering 82% of total US population. Using this definition, the share of cultural employment ranges between 0 and 0.8% with a median value of 0.2%.

Urban wages also come from the U.S. Bureau of Labor Statistics and are defined as the median hourly wage of all non-cultural workers in each metropolitan area. Data on rental prices come from the "50th percentile series" of the U.S. Department of Housing and Urban Development (HUD). These correspond to gross rent estimates, including utilities, at the 50th percentile point of the rent distribution of rental housing units. To control for a major difference in housing characteristics, I use the median gross rent of a 2-bedroom rental unit (Saiz, 2007). Sources and definitions of control variables are provided in Appendix B. A statistical summary of the data is given in the online Table C.2.

4. Empirical results

4.1. Baseline regressions

To determine the effect of culture on production and consumption amenities, I estimate the following reduced form equation using ordinary least squares (OLS) on the panel of U.S. cities over the period 2005–2011:

$$\ln(Y_{ct}) = \beta_0 + \beta_1 \cdot \ln(S_{ct}) + \beta_2 \cdot \ln(Z_{ct}) + \beta_3 \cdot \ln(X_c) + \gamma_c + \epsilon_{ct} \quad (1)$$

where $\ln(Y_{ct})$ alternatively stands for the logarithm of the median gross rent and the median hourly wage in city c in year t . $\ln(S_{ct})$ is the measure of cultural specialization of city c (in log) while Z_{ct} and X_c respectively correspond to vectors of time-varying and invariant city attributes. I also include in several estimations a set of city

¹ Estimations using a wider definition of culture including all culture-related occupations provide similar results. A description of cultural occupations is given in the online Table C.1.

² These geographical units correspond to local labor markets with strong commuting ties between each component. I restrict the sample to cities located in contiguous continental US states and exclude New England City and Town Areas (NECTAs) for which a corresponding MSA cannot be found.

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