### An Overview of Cultural Building in the United States: 1994-2008

Joanna Woronkowicz, Ph.D<sup>1</sup> University of Chicago

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#### Abstract

The cost of cultural infrastructure building in the U.S. increased between 1994 and 2008, and the increase was the greatest between 1998 and 2001. As compared to capital expenditures in selected social and entertainment sectors, investment into cultural infrastructure building was low, but the rate of change of investment into cultural infrastructure building was higher than or comparable to rates of change in other social and entertainment sectors, particularly between the years 1999 and 2003. Furthermore, there was greater investment in performing art centers (PACs) than museums and theaters. The Southern region of the U.S. had higher levels of raw dollar investment into cultural infrastructure building, but all regions had increases in the proportion of spending relative to regional gross domestic product (GDP) and disposable personal income (DPI), particularly between 1999 and 2003. All regions, except for the Northeastern region, invested more into PACs than museums and theaters. Large MSAs invested more into cultural infrastructure building than small MSAs, and large MSAs increased their investment into cultural infrastructure building over the years more than small MSAs. However, large and small MSAs both increased their first-time investment into cultural infrastructure. Finally, investment into privately-owned projects was greater than academic- and government-owned projects, and all ownership types increased their investment over time. Museums were mainly privately-owned; government and academic institutions pursued PAC projects more than they did museums and theaters. Furthermore, most regions invested more into government-owned projects as compared to academic projects. However, all regions had more private-owned projects than government- or academic-owned projects.

### I. Introduction

Space has always been vital to the pursuit of culture. Within Greek and Roman history, there were open-air theaters devoted to the works of Aeschylus, Sophocles, and Euripides. Here, the theaters had very specific forms especially suited for the large casts and audiences that participated in theatrical productions. In Shakespeare's time, theaters were a place where hundreds of people could gather, some standing on the dirt ground to see performances. Throughout history, nobles have filled their palaces with sculptures and artifacts to commemorate important periods in time. Nineteenth- and twentieth-century America saw the institutionalization of museums in cities around the country in order to provide places for culture to live. Theaters, museums, and other types of performance spaces have always played a role in creating and sustaining art, and they continue to do so today. However, the role that space plays in arts and culture is ever changing. At one time, cultural spaces served the purposes of bringing people together and preserving important objects. While still part of the role they play today, cultural spaces now also serve to symbolize an organization's stature or a city's stance on culture. In this article, I discuss the construction of cultural spaces – in other words, cultural infrastructure building. This paper, whose purpose is to describe the landscape of cultural infrastructure in the U.S. between 1994 and 2008, is part of a larger study on cultural infrastructure in the United States<sup>2</sup>.

Rather than outline all of the reasons that propelled this study into motion, I start with some examples. On October 5, 2006, the Carnival Center for the Performing Arts opened in Miami, Florida. Architect, Cesar Pelli, designed the center, which ended up costing a total of \$473 million, a large proportion of which was public funds. The project's creators conceived the center in order to spur economic development in downtown Miami, house the area's ballet and symphony, attract popular touring acts, and help smaller area arts organizations. Even before the center opened, those who were involved with the project experienced some bumps along the way, including an almost doubling of the project's budget and a delayed opening. In the first eighteen months after the opening, the center's management was dealing with a \$2.5 million deficit in part caused by smaller than projected audience sizes and budget miscalculations. Miami-Dade County added a \$4.1 million bailout to the already \$3.75 million it provided for

<sup>&</sup>lt;sup>2</sup> To inquire about this or other parts of the study, please contact the author.

operations, but still, it was not enough. It was then that Adrienne Arsht, a wealthy banker and philanthropist in the area, donated \$30 million to help save the center, which resulted in a rename from the previous Carnival Performing Arts Center to the Adrienne Arsht Center for the Performing Arts. Four years after the opening, the center is operating in the black, though still reliant on County subsidies and revenue from hotel taxes and still short of their initial goals in audience development and programming revenue (Kaleem 2010).

The Adrienne Arsht Center for the Performing Arts is another example of a cultural building project that started out with ambitious goals and then had trouble achieving them. The Fresno Metropolitan Museum in Fresno, California closed its doors on January 12, 2010 after a longer-than-planned renovation process with a higher-than planned renovation price tag. The museum took three years to renovate the facility at \$28 million. After defaulting on their loan of \$15 million (and the city taking it over), they found themselves in a dire situation with a debt of about \$4.4 to \$4.8 million. In this case, staff layoffs and budget cuts could not save the Fresno (and they were not quite as lucky to have a knight-in-shining-armor come save the museum from demise) (Johnson 2010).

On Michigan Avenue in Chicago, the Spertus Institute of Jewish Studies, which houses the Spertus Museum, stands out among its neighboring historic brick buildings. Krueck and Sexton Architects designed the building, encased with a folded glass façade, which cost about \$55 million -- \$38 million of which went towards the design and construction of the building (Spertus Institute of Jewish Studies). The organization borrowed \$52 million and had paid off about \$8.5 million as of June, 2009. The project opened in November, 2007. Like other projects, staff cuts, management changes, and reductions in operating hours came with the opening of the facility (Kapos 2009). The organization still has a long way to go before digging itself out of the hole it helped create; at the end of 2008, it reported a deficit of about \$4.5 million<sup>3</sup>.

These three examples help illustrate what is a growing trend in cultural infrastructure building: an organization decides to build new facility; things go awry along the way; the organization struggles to survive after the building project opens. While some say this trend is

<sup>&</sup>lt;sup>3</sup> According to line 19 (revenues minus expenses) of the organization's 2008 IRS Form 990 (Guidestar 2010).

not unique to the cultural sector – many organizations struggle with debt after investing in capital projects – it is unique in regards to the organizational structure of cultural organizations. The federal government designates most cultural organizations as 501 (c) (3) organizations meaning that donations to the organization are tax-deductible. This allows cultural organizations to sustain themselves partly with unearned income (i.e., donations and government subsidies) and partly with earned income (i.e., ticket revenue). Most organizations have more of the former than the latter, making it difficult to survive if the former for some reason dissipates. Capital projects put a tremendous amount of strain on organizations to raise money – an even greater amount of strain than they already have just to remain in operation. Therefore, in order to help alleviate this strain, many organizations tend to make unrealistic projections for earned revenue after the building project opens. Certainly, we have all heard the now infamous adage resulting from the 1997 opening of the Guggenheim Museum Bilbao: "If you build it, they *may* come." Unfortunately, it is starting to seem as if the adage should be, "If you build it, they *may* come." However, many cultural organizations that have pursued or are planning to pursue projects seem not to adhere to the more ambiguous revised phrase.

The recent prevalence of organizations that find themselves in financial trouble after the opening of building projects and the role that the public play in the sustainability of cultural organizations are two of the major reasons why a study of cultural infrastructure building in the U.S. is warranted. On one hand, the sustainability of cultural organizations and the cultural sector as a whole is important to maintaining the cultural vitality of this country. On the other hand, not everyone believes that maintaining cultural vitality is a priority, and therefore, not everyone believes that the public should have to pay for doing so. These projects take a toll on the organizations themselves, but also on those that help pay for the projects. Not only do wealthy philanthropists sometimes have to see their investments crumble, but taxpayers also have to see their hard-earned money be devoted to failing projects that may not continue to help deliver a public good. All of these reasons helped spur a study of cultural infrastructure building in the U.S.

This paper sets the foundation for future papers on this topic by describing in detail the landscape of cultural infrastructure building in the U.S. from 1994 to 2008. Rather than present arguments for and against the reasons for building, I provide a descriptive overview to serve as a

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foundation for future research on cultural building. First, I describe the data I used and their limitations. In the bulk of the paper, I describe the findings I came to from conducting a thorough analysis of the cultural infrastructure landscape between 1994 and 2008. This section includes findings in regards to the entire population of projects, as well as to projects broken down by type, location, and ownership structure. The result is a full overview of cultural infrastructure building in the U.S. between 1994 and 2008 with important implications for the cultural sector.

### II. Data

The data on all cultural infrastructure building projects between 1994 and 2008 came from building permit data<sup>4</sup>. The year 1994 was the earliest year for which data were available and the year 2008 was when we began the study. The initial list of 2,879 projects included museums, theaters, and auditoriums<sup>5</sup>. I cleaned the list to include only projects that fell under the study's definition of cultural infrastructure. The study made the decision to define cultural infrastructure based on a number of criteria that help to make comparisons across building projects. First, there was an effort to include organizations that had similar organizational structures - in this case, tax-exempt organizations. Second, the study focuses on what is typically referred to as the fine arts - visual arts, performing arts, opera, etc.-rather than what is more typically referred to as entertainment. This also helps align the study with other studies in the cultural policy sector, such as the Survey for Public Participation in the Arts sponsored by the National Endowment for the Arts. Third, the study chose to include cultural organizations focused more on cultural enjoyment as compared to those focused on the pursuit of scientific inquiry (i.e., natural history museums and science museums). Finally, the study's definition came from recognizing the types of cultural organizations that its funders typically support and having the goal of providing insight into future cultural organization funding decisions.

Based on these criteria, the final dataset includes museums (museums include traditional art museums, ethnic museums, history museums and historical societies and organizations, and cultural art centers that focus primarily on exhibiting art; children's museums, science museums, natural history museums, halls of fame, and specialty museums including museums devoted to

<sup>&</sup>lt;sup>4</sup> Building-permit data supplied by McGraw-Hill Construction, Inc.

<sup>&</sup>lt;sup>5</sup> We changed the label "auditoriums" to "performing arts centers."

the study and/or display of one object (i.e., Balloon Museum), one industry (i.e., Police Museum), or a person (i.e., Ernest Hemingway Museum) are not included), theaters (theaters include single-use performance spaces such as those concentrating on hosting Broadway tours or those with their own resident companies), and PACs (PACs include spaces that host multi-disciplinary performance acts (i.e., comedians, pop concerts, dance groups, theater groups), cultural art centers primarily focused on performance, dance theaters, opera houses, symphony halls, concert halls, and auditoriums). University-owned institutions are included, but those owned by high schools, middle schools, and elementary schools are not included. Local and state government-owned organizations are included, but those owned by the federal government (i.e., Smithsonian Institution) are not. We excluded projects under \$4,000,000<sup>6</sup> to focus on those with substantial value and to insure adequate representation of the entire universe of cultural building projects in the U.S. during this period.

The cleaned dataset includes variables on a variety of aspects of each individual building project. Table A lists the variables in the dataset. I added other variables such as *MSA Population, Region,* and *Ownership Type* in order to perform parts of the analysis.

<sup>&</sup>lt;sup>6</sup> All project costs are in 2005 dollars. The analysis consisted of using different types of indexes to adjust for inflation. All graphs and figures indicate the type of index used.

Table A. Variables in the Dataset of Projects

	Variables					
ID Number	Metropolitan Statistical Area (MSA)	Project Title	Project Category	Project Address	Project City	Project County
Project State	Project Zip	Project Value	Project Square Feet	Owner	Owner Contact	Owner Address
Owner City	Owner State	Owner Zip	Owner Phone	Owner Fax	Architect	Architect Contact
Architect Address	Architect City	Architect State	Architect Zip	Architect Phone	Architect Fax	Construction Start Year and Month

Source: McGraw-Hill Construction, Inc.

### **III.** Data Limitations

As with all data, there are limitations due to the composition of the dataset. Some variables are outdated, data points may occasionally be missing, and some variables of interest may be missing altogether.

In terms of missing data, the variable *Project Square Feet* was missing for many observations. Therefore, I do not perform analyses on square footage of projects. Various data points are also outdated. If the project's owner changed, I do not have record of this occurring. Alternatively, if the project value changed after the issue of the building permit, I do not have the updated value<sup>7</sup>. For a sample of fifty-six organizations, I compare the building permit value with the actual value indicated by a project representative. Table B shows the results broken down by type of project.

<sup>&</sup>lt;sup>7</sup>I have updated values on a sample of 56 projects that we studied more intensively. This data will be used for other portions of the study.

# Table B. Difference between Project Value in Building Permit Data and Value Indicated bya Project Representative by Type of Project

	Muse	ums	
	Sampled Organization Value	<b>Building Permit Value</b>	
Mean	\$91,900,000 (\$31,700,000)	\$54,300,000 (\$18,900,000)	
Median	\$38,793,322	\$30,423,248	
Observations	18		
Difference Between Means	\$37,600,000*** (\$13,600,000)		
	PACs		
Г	Sampled Organization Value	<b>Building Permit Value</b>	
Mean	\$118,000,000 (\$32,900,000)	\$64,900,000 (\$18,200,000)	
Median	\$73,415,094 \$33,343,888		
Observations	20		
Difference Between Means	\$52,800,000*** (\$17,000,000)		
	Theat	ters	
Γ	Sampled Organization Value	<b>Building Permit Value</b>	
Mean	\$41,100,000 (\$17,100,000)	\$34,500,000 (\$17,700,000)	
Median	\$20,103,205	\$14,103,963	
Observations	8		
Difference Between Means	\$6,613,452*** (\$1,802,519)		

Notes: Results from a one-sided t-Test where mean (difference) = (sampled organization value – building permit value); H<sub>0</sub>: mean (difference) = 0 and H<sub>a</sub>: mean (difference)> 0; Standard errors in parentheses; \*\*\*p<.01; Project costs adjusted to 2005 dollars using fixed investment nonresidential gross private domestic investment (GPDI) indexes. The sum of the sampled organizations is equal to 46 because the t-Test does not include observations with missing data.</li>
 Source:McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

The table above illustrates the average difference between the value on the building permit and the value stated by a project representative. The actual values of museums were about 69% greater, on average, than the values on the building permit. The values of PACs were approximately 82% greater than the building permit values, and the values of theaters were about 19% greater. While one could initially see the incorrect project value data as a limitation, the apparent understatement of project values may help to emphasize the impact of cultural building projects.

Other limitations are simply due to not having certain variables of interest. The data do not include information on whether the project was a new construction, renovation, or expansion. Being able to categorize between types of projects could help illustrate what type of constructions projects were more prevalent and what the effects of each were. Finally, no financial data is available other than total cost of project, is available which makes it difficult to identify the sources of funding for projects. It may be that a proportion of project cost is public and another, private.

Despite the limitations the data pose, I was able to perform a variety of analyses on the entire dataset of cultural infrastructure projects in the field. The following section describes these analyses and their results in detail. The findings from the analyses provide a thorough overview of cultural infrastructure building in the U.S.

#### **IV.** Trends and Statistics

The following section describes findings from an analysis of cultural infrastructure building in the U.S. between 1994 and 2008. In order to illustrate the landscape of cultural infrastructure building in this period, I highlight trends in cultural building costs – raw costs and costs relative to other economic trends. I also compare cultural building activity with capital expenditure activity in other sectors. I present findings based on analyses of the types and locations of cultural infrastructure building. Finally, I include analyses of ownership-type of buildings – academic-, private-, or government-owned institutions.

### V. General Trends and Statistics

First, I identify important statistics and trends that emerged in cultural infrastructure building. Analysis then took the form of comparing trends in cultural building with those of other sectors to provide a context for cultural sector building.

The dataset of all building projects that were started between these years includes 725 individual building projects totaling approximately \$15.5 billion. The average cost of a single project in the dataset is approximately \$21.5 million, ranging from \$4 million to approximately \$335 million, with a median cost of about \$11.3 million.

### Table C. Cost of Projects

N	Total	Mean	Median	Standard Deviation	Min	Max
725	\$15,526,876,198	\$21,416,381	\$11,306,973	\$31,101,202	\$4,000,000	\$335,142,666

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:**McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Based on the comparison between building permit values and sampled organization values (Table B), I estimated the distribution of project costs as if the data included the updated project costs<sup>8</sup>. Table D shows the distribution: in this case, the total cost of all cultural building is approximately \$26.7 billion, the average cost is about \$36.8 million, the median cost is about \$18.6 million, and the projects range from about \$4.8 million to \$609 million<sup>9</sup>.

<sup>&</sup>lt;sup>8</sup> Updated costs include costs in addition to raw construction costs including costs for building furnishings, technical equipment, etc. which were not included in the building permit file.

<sup>&</sup>lt;sup>9</sup> I multiplied building permit values by the average difference (in percentage terms) between building permit values and sampled organization values. I then added this value to the building permit value to get the updated value.

# Table D. Cost of Projects Adjusted for Average Difference between Sampled Value andBuilding Permit Value

Ν	Total	Mean	Median	Standard Deviation	Min	Max
725	\$26,711,176,287	\$36,843,002	\$18,616,943	\$54,655,772	\$4,765,217	\$609,350,301

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:**McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Table E provides a greater understanding of project costs. The percentile distribution illustrates the right skew of the distribution of costs; approximately 75% of projects cost less than the mean of \$21,416,381 and 50% of projects cost less than the median of about \$11.3 million. Only 5% of projects cost over approximately \$73.3 million.

**Table E. Percentile Distribution of Project Cost** 

Percentile	Project Cost
1%	\$4,100,000
5%	\$4,522,789
10%	\$5,476,185
25%	\$7,188,097
50%	\$11,306,970
75%	\$21,965,250
90%	\$46,358,590
95%	\$73,307,700
99%	\$154,974,200

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:**McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

In order to see how the costs of cultural infrastructure building fluctuated between years, Figure 1 illustrates the total cost of all projects started in the U.S. between 1994 and 2008 in 2005 dollars. In terms of total cost, the greatest increase in cultural infrastructure spending occurred between 1998 and 2001; in 1998 cultural building projects cost a total of approximately \$445 million and this figure rose to approximately \$1.8 billion in 2001. The total cost continues to be high relative to what it was in the mid-to-late-nineties.





**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:** McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

The mean cost of projects decreased greatly between 1995 and 1998 and increased between 1998 and 2000 where it remained stable until 2003. Since 2003, the mean cost of all projects has generally decreased. On the other hand, the median cost of all projects has generally remained stable throughout the years, wavering around \$10 and \$11 million. Figure 2 suggests that the pursuit of many large projects may have brought up the mean between the years 1998 and 2003, but generally, the cost of building a cultural facility did not increase between the specified years.



#### Figure 2. Mean and Median Cost of Projects by Year

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:** McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Other trends, relative to project spending within the sector, help illustrate the intensity of building activity. Building investment is one part of the total gross domestic product (GDP) of the U.S.; therefore, Figure 3 shows the total cost of cultural building as a proportion of GDP. The greatest increase in cultural building occurred between 1998 and 2001 when the total cost relative to GDP rose from approximately .004% to .016%.



Figure 3. Cost of Projects as a Proportion of GDP by Year

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. GDP figures adjusted to 2005 dollars using GDP indexes.

Source: McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Specifically, cultural infrastructure building investment is a part of all fixed nonresidential gross private domestic investment (GPDI), calculated as part of the GDP. Figure 4 illustrates cultural building investment as a proportion of nonresidential GPDI. Similar to the costs as a proportion of all GDP, cultural infrastructure building showed the greatest increase between the years 1998 and 2001. In 1998, cultural building was approximately .03% of all nonresidential GPDI rising to .11% in 2001.



Figure 4. Cost of Projects as a Proportion of GPDI by Year

Notes: Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. GDPI figures adjusted to 2005 dollars using fixed investment nonresidential GDPI indexes.
 Source:McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Finally, since part of the investment into cultural infrastructure comes from individual donations, I illustrate cultural building as a proportion of total disposable person income (DPI) in Figure 5. Again, the greatest increase occurred between 1998 and 2001 with building relative to DPI increasing from approximately .005% in 1998 to .020% in 2001.



Figure 5. Cost of Projects as a Proportion of DPI by Year



The graphs above show cultural infrastructure building investment as a proportion of selected macroeconomic figures. The following graphs show infrastructure spending relative to other types of spending in the arts. Figure 6 tracks cultural infrastructure spending relative to all contributions in the arts, culture, and humanities. Here, the arts, culture, and humanities specifically include "performing arts; museums of all kinds; historical societies; humanities organizations; and media and communication charities, including public broadcasting" (Giving USA Foundation 2009). In 1998, infrastructure spending made up approximately 4% of all contributions in the arts, culture, and humanities sector. This figure rose to approximately 14% in 2001.





 Notes: Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. Contribution figures adjusted to 2005 dollars using Consumer Price Indexes (CPI).
 Source:McGraw-Hill Construction, Inc.; Giving USA Foundation; Bureau of Economic Analysis, U.S. Department of Commerce; InflationData.com

Figure 7 shows how the trend in the number of arts organizations kept up with spending on infrastructure. I tabulated the number of organizations that filed IRS Form 990s in the following Arts, Culture, and Humanities (A) categories as designated by the National Taxonomy of Exempt Entities (NTEE) coding system: Museums (A50), Art Museums (A51), History Museums (A54), Performing Arts Centers (A61), Dance (A62), Ballet (A63), Theater (A65), Symphony Orchestras (A69), and Opera (A6A) (National Center for Charitable Statistics). I chose these particular categories because of their relationship with cultural infrastructure; they are typically organizations that make use of infrastructure in the arts. Figure 7 shows the ratio of total cultural infrastructure project costs to total number of arts organizations each year. The trend illustrates the average amount of cultural infrastructure of each organization. Similar increases occur in Figure 7 as shown in previous figures. The greatest increase occurred between 1998 and 2001. In 1998, each organization spent an average of \$62,000 on cultural infrastructure and this figure rose to over \$200,000 in 2001

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Figure 7. Average Amount Spent on Capital Projects by Each Organization by Year

Notes: Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. Source:McGraw-Hill Construction, Inc.; National Center for Charitable Statistics; Bureau of Economic Analysis, U.S. Department of Commerce

Finally, I calculated the sum of all arts and culture organizations' (as defined above) revenue in order to illustrate infrastructure spending as a proportion of total revenues (National Center for Charitable Statistics). The greatest increase occurred between 1998 and 2001. In 1998, cultural infrastructure spending as a proportion of all arts and culture revenue was about 4%. This figure rose to over 14% in 2002.



Figure 8. Cost of Projects as a Proportion of All Organizations' Revenue by Year

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. Revenues adjusted to 2005 dollars using CPI.

Source:McGraw-Hill Construction, Inc.; National Center for Charitable Statistics; InflationData.com

There is evidence that cultural infrastructure building investment increased between 1994 and 2008. Mean project costs increased, and then decreased, over time, but median project costs remained relatively stable. The majority of projects cost less than the average cost of an individual project. Relative comparisons show that greatest increase occurred between the years 1998 and 2001.

### VI. Comparisons to other Sectors

It is clear from the graphs that cultural infrastructure building in the U.S. increased in cost between 1994 and 2008, and that the most pronounced increase occurred between 1998 and 2001. In this section, I compare building activity in cultural infrastructure with activity in other sectors. The following section takes into account nonresidential GPDI in order to illustrate expenditures as a proportion of all other building investment.

Data from the *Annual Capital Expenditure Survey* includes aggregate levels of capital expenditures for many different industries. From 1999 onwards, the U.S. Census Bureau published results from the survey according to 3- and 4-digit North American Industry

Classification System (NAICS) codes; before this date, the Census based results on the Standard Industrial Classification (SIC) System. The two systems are not comparable;

First, I compare cultural infrastructure expenditures with expenditures in selected social sectors as a proportion of nonresidential GPDI. The Census published aggregate results from each survey for a variety of industries, but because of the similarities between the financial structures of organizations in the selected social sectors and organizations in the cultural infrastructure sector – the greatest similarity being that the majority function as 501 (c) (3) entities – I include the following: for years 1994 through 1998 (SIC survey years), I compare capital expenditures in Hospitals (806), Educational Services and Libraries (82), and Membership and Religious Organizations (86) with cultural infrastructure expenditures. For years 1999 through 2008 (NAICS survey years), I compare capital expenditures in General Medical and Surgical Hospitals (6221), Educational Services (61), and Religious, Grantmaking, Social Advocacy, Civic, and Social Organizations (8131-8134) with cultural infrastructure expenditures. For ease of comparison, the figures below show generic labels for each social sector industry: I label Hospitals, General Medical, and Surgical Hospitals as "Hospitals," educational services and libraries and educational services as "Education," and membership and religious organization and religious, grantmaking, social advocacy, civic, and social organizations as "Religion."

Figure 9 shows capital expenditures in each social sector industry compared with cultural infrastructure expenditures in each year as a proportion of GPDI. The data clearly show that expenditures in each social sector industry were far greater than cultural infrastructure expenditures in each year. Expenditures in hospital infrastructure were about 2.6% of GPDI in 1994 and increased to 6.3% in 2008, but cultural infrastructure expenditures as a proportion of GPDI are hardly visible on the graph.





- **Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. Social sector expenditures adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. GPDI figures adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes.
- Source:McGraw-Hill Construction, Inc.; U.S. Census Bureau, Annual Capital Expenditures Survey; Bureau of Economic Analysis, U.S. Department of Commerce

Comparing levels of expenditures in other entertainment sectors with cultural infrastructure expenditures is a more complicated matter. This is primarily because it is not clear which SIC or NAICS industries cultural infrastructure (as defined by the study) would fall under. For years 1994 through 1999, the Census published capital expenditure levels in Amusement and Recreation Services (79) which includes Theatrical Producers (Except Motion Pictures) (792); likewise, it published levels in Museums, Art Galleries, and Botanical and Zoological Gardens (84) which includes Museums and Art Galleries (8412). Most likely, the organizations we included in the study's definition of the cultural sector would not fall into mutually exclusive categories but would rather overlap many categories. Since the Census does not publish survey results for each individual sub code – instead they aggregate individual sub codes across major codes – it is difficult to make direct comparisons. I use the following method in order to compare cultural infrastructure expenditures to expenditures in all other entertainment industries as a proportion of GPDI. To create a category that is comprised of expenditures in all other entertainment industries

entertainment categories - Amusement and Recreation Services (79) and Museums, Art Galleries, and Botanical and Zoological Gardens (84). The NAICS codes that the Census used to publish results in survey years 1999 to 2008 greatly differ from the SIC codes they used in the previous cycles. The NAICS system aggregated all entertainment industry capital expenditures into one major code. It is therefore easier to compare cultural infrastructure expenditures to expenditures in all other entertainment sectors between these years. The NAICS code for Arts, Entertainment, and Recreation (71) includes Performing Arts, Spectator Sports, and Related Industries (711), Museums, Historical Sites, and Similar Institutions (712), and Amusement, Gambling and Recreation Services (713). I assume that expenditures in cultural infrastructure fall into one of these three sub codes; therefore, expenditures in cultural infrastructure fall under the major code for Arts, Entertainment, and Recreation. I subtracted cultural infrastructure expenditures from the major code for Arts, Entertainment, and Recreation to create the category of All Other Entertainment. The data show that expenditures in cultural infrastructure were far less than expenditures in all other entertainment as a proportion of GPDI. Expenditures in all other entertainment sectors made up approximately 0.5% of all nonresidential GPDI in 1994 and increased to 2.14% in 2008.

Figure 10. Cultural Infrastructure and All Other Entertainment Sector Expenditures as a Proportion of GPDI by Year



- **Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. All other entertainment sector expenditures adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. GPDI figures adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes.
- Source:McGraw-Hill Construction, Inc.; U.S. Census Bureau, Annual Capital Expenditure Survey; Bureau of Economic Analysis, U.S. Department of Commerce

From the graphs above, it appears as if cultural infrastructure expenditure levels were far less than expenditures in selected social sector industries as a proportion of nonresidential GPDI. This is also true when I compare cultural expenditures to expenditures in all other entertainment sectors. From examining rates of change, we can see how fast expenditures changed from year-to-year. Rates of change are highly fluctuating; therefore, the figures show five-year averages. The period between 1994 and 1998 encompasses SIC survey years; the periods between 1999 and 2003, and 2004-2008 encompass NAICS survey years. Figure 11 shows the average change in expenditure levels in selected social sectors and cultural infrastructure as proportion of nonresidential GPDI. Cultural infrastructure spending changed at a rate of 9.29% between 1999 and 2003. This is greater than the average change in both the hospital (7.70%) and education (9.24%) sectors during this period.

## Figure 11. Five-Year Average Change of Cultural Infrastructure and Social Sector Expenditures as a Proportion of GPDI



- **Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. Social sector expenditures adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. GPDI figures adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes.
- Source:McGraw-Hill Construction, Inc.; U.S. Census Bureau, Annual Capital Expenditure Survey; Bureau of Economic Analysis, U.S. Department of Commerce

Figure 12 shows average five-year changes in cultural infrastructure and all other entertainment sectors as a proportion of nonresidential GPDI. The graph shows that cultural infrastructure increased its rate of spending between 1999 and 2003. In that period, the rate of change of spending in cultural infrastructure (9.29%) was greater than in all other entertainment sectors (4.75%).

### Figure 12. Five-Year Average Change of Cultural Infrastructure and all other Entertainment Sector Expenditures as a Proportion of GPDI



- **Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. All other entertainment sector expenditures adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. GPDI figures adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes.
- Source:McGraw-Hill Construction, Inc.; U.S. Census Bureau, Annual Capital Expenditure Survey; Bureau of Economic Analysis, U.S. Department of Commerce

The data help illustrate a number of trends in cultural infrastructure building that occurred between 1994 and 2008. First, it is clear that the cost of cultural infrastructure building increased between 1998 and 2001. After taking into account other activity in both the macroeconomic climate and the arts and culture sector, the data illustrate an increase in the total cost of cultural infrastructure building expenditures over time between these years as well. As compared to capital expenditures in selected social sectors and all other entertainment sectors as a proportion of nonresidential GPDI, expenditures in cultural infrastructure building are relatively low. However, the rate of change of spending in cultural infrastructure as a proportion of nonresidential GPDI was greater than or comparable to other social sectors and all other

### VII. Type Trends and Statistics

The distribution among cultural infrastructure building projects started between 1994 and 2008 is the following: 50% of all projects were PACs, 39% were museums, and 11% were theaters. Similar to the project category frequency rank, PACs totaled approximately \$8.3 billion

(54% of the total cost) in the dataset, followed by museums totaling approximately \$5.9 billion (38% of the total cost), and theaters totaling approximately \$1.2 billion (8% of the total cost). Therefore, PACs made up the majority of all cultural infrastructure building projects between 1994 and 2008 in both frequency and total cost.

Туре	Ν	Total	Mean	Median	Standard Deviation	Min	Max
Museums	281	\$5,943,841,797	\$21,152,462	\$11,312,699	\$31,052,080	\$4,000,000	\$328,571,240
Theaters	80	\$1,231,777,945	\$15,397,224	\$10,035,571	\$19,559,671	\$4,000,000	\$152,116,240
PACs	364	\$8,351,256,456	\$22,943,012	\$11,415,471	\$33,043,050	\$4,000,000	\$335,142,670

 Table F. Cost of Projects by Type

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:**McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

The total cost of each type of project increased between 1994 and 2008 (Figure 13). PACs saw the greatest increase in total cost across years, followed by museums and then theaters. Museum projects, theater projects, and PAC projects totaled approximately \$108 million, \$36 million, and \$451 million dollars, respectively, in 1994. After 1998, the trends in the total costs of each type of cultural building project diverged. The total cost of all theater projects peaked in 2003 at \$239 million, museum projects peaked at \$790 million in 2002, and PAC projects peaked at \$943 million in 2001. Both investment into PACs and museums increased the most between 1998 and 2001. Theater investment experienced modest increases, if any, throughout the entire fifteen-year period.





**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:**McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

The following figure illustrates the average amount spent on capital projects by each type of organization over five-year periods. In contrast to Figure 7 this figure shows the average amount each type of organization invested into cultural building. The following NTEE categories are included: Museums (A50), Art Museums (A51), and History Museums (A54) in the museum category; Performing Arts Centers (A61), Dance (A62), Ballet (A63), Symphony Orchestras (A69), and Opera (A6A) in the PAC category; and Theater (A65) is included in the theater category. The graph indicates that PACs and museums, on average, spent more on cultural building than did theaters.





Notes: Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. Source:McGraw-Hill Construction, Inc.; National Center for Charitable Statistics; Bureau of Economic Analysis, U.S. Department of Commerce

Finally, Figure 15 shows cultural infrastructure investment as a proportion of each type of organization's total revenue. The proportion was the highest for both museums and PACs between 1999 and 2003, and the proportion decreased over each five-year period for theaters. PACs had the highest proportion in each five-year period. The average proportion between the years 1994 and 1998 for a PAC was approximately 8.6%, 15.9% between 1999 and 2003, and 12.4% between 2004 and 2008. Between 1994 and 1998, the average total investment as a proportion of revenue was approximately 5.5% for museums, 12.4% between 1999 and 2003, and 6.8% between 2004 and 2008.

Figure 15. Five-Year Average Cost of Projects as a Proportion of Organization Revenue by Type



**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. Revenues adjusted to 2005 dollars using CPI.

Source:McGraw-Hill Construction, Inc.; National Center for Charitable Statistics; Bureau of Economic Analysis, InflationData.com

From the graphs above, we see that the nation invested more into PAC construction than any other type of construction. PACs and museums fueled the increase in cultural building particularly between the years 1998 and 2001. Relative to the number of organizations by type, museums and PACs had the highest average investment between 1999 and 2003 while theater investment decreased over time. The same is true in regards to total investment as a proportion of each type of organization's total revenue.

### VIII. Regional Trends and Statistics

I use Census regions to analyze cultural building projects by location. Figure 16 shows a map of the U.S. separated into the four Census regions (Midwest, Northeast, South, and West).

### Figure 16. Census Regions of the United States



Source:U.S. Census Bureau, U.S. Department of Commerce, Economics and Statistics Administration

The distribution across regions shows that the majority of projects started were located in the Southern (34%) region of the U.S. followed by the Midwestern (24%), Western (21%), and Northeastern (21%) regions (Table G) In terms of total cost of projects, 32% of the total cost of all building took place in the Southern region, 25% in the Midwestern region, 23% in the Western region, and 20% in the Northeastern region.

Region	Ν	Total	Mean	Median	Standard Deviation	Min	Max
Midwest	172	\$3,822,924,859	\$22,226,307	\$11,239,198	\$27,942,384	\$4,000,000	\$154,974,230
Northeast	152	\$3,163,928,327	\$20,815,318	\$11,248,350	\$34,766,170	\$4,000,000	\$328,571,240
South	246	\$5,030,299,519	\$20,448,372	\$10,947,125	\$30,723,377	\$4,025,000	\$335,142,670
West	155	\$3,509,723,493	\$22,643,377	\$12,074,058	\$31,894,906	\$4,000,000	\$221,306,260

 Table G. Cost of Projects by Region

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:** McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Figure 17 compares the five-year average total costs of cultural building across regions. The Southern region of the U.S. experienced a higher level of building than all other regions between 1999 and 2003, and between 2004 and 2008. Between 1999 and 2003, the Southern region invested an average of approximately \$519 million into cultural building as compared to \$348 million, \$316 million, and \$278 million in the Midwestern, Western, and Northeastern regions, respectively. Between 2004 and 2008, the Southern region invested approximately \$367 million, while the Western, Midwestern, and Northeastern regions invested approximately \$266 million, \$243 million, and \$197 million, respectively.



Figure 17. Five-Year Average Cost of Projects by Region

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:**McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

However, just because the Southern region saw more building in terms of frequency and total cost does not mean that the intensity of building was greater in this region than in others. Relative to other economic trends in the region, other regions experienced a comparable volume of cultural building. Figure 18 shows the comparison between total costs as a proportion of regional GDP for all regions across five-year periods. Between 1994 and 1998, cultural building investment as a proportion of regional GDP was .0081% in the Midwest, .0079% in the Northeast, .0059% in West, and .0039% in the South. Between 1999 and 2003, all of these figures increased; the Midwest's investment was .0141% versus .0141% in the South, .0122% in the West, and .0117% in the Northeast. Finally, between 2004 and 2008, the Midwestern region's proportion was .0084%, and the Western region's proportion was .0089%



Figure 18. Five-Year Average Cost of Projects as a Proportion of Regional GDP

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. Regional GDP figures adjusted to 2005 dollars using GDP indexes.

Source:McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Relative to DPI the total cost of cultural building in each region increased over each fiveyear period for all regions. Figure 19 shows how each region ranked relative to one another. The proportion of total costs of cultural building relative to regional DPI in the Midwestern, Northeastern, Southern and Western regions between 1994 and 1997 was 6.6%, 6.2%, 3.2%, and 4.6%, respectively. Between 1999 and 2003, the figures were 17.5% (Midwest), 14.2% (Northeast), 16.4% (South), and 14.8% (West). Finally, between 2004 and 2008, each region's proportions were 21.9% (Midwest), 18.2% (Northeast), 21.5% (South), and 22.4% (West). The Midwestern region had the highest proportion in almost all periods, but the Western region surpassed all regions between 2004 and 2008.



Figure 19. Five-Year Average Cost of Projects as a Proportion of Regional DPI

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. DPI figures adjusted to 2005 dollars using PCE indexes.

Source:McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Table H shows the total cost of cultural building projects by region and by type. In terms of the total cost of all cultural building projects, the Northeastern region surpassed all other regions in terms of the amount of money spent on museum building projects, the Southern region spent more on PAC building than any other region, and the Midwestern region spent more on theater building from 1994 until 2008. All regions, except for the Northeastern region, spent more on PAC building, less on museum building, and even less on theater building.

Table H. Cost of Projects by Region and Type

	Museums	PACs	Theaters
Midwest	\$1,350,022,500	\$2,048,675,500	\$424,226,800
Northeast	\$1,807,379,200	\$1,106,007,000	\$250,542,190
South	\$1,560,643,600	\$3,239,992,900	\$229,662,970
West	\$1,225,796,500	\$1,956,581,000	\$327,345,980

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:**McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

The Southern region of the U.S. saw more investment into cultural building in raw dollars than any other region. However, all regions showed increased levels of investment relative to other regional economic figures such as GDP and DPI, particularly between the years 1999 and 2003. All regions increased their investment over time relative to DPI. Finally, most regions tended to spend the most on PAC building projects and the least on theater building projects.

### IX. Metropolitan Statistical Area (MSA) Trends and Statistics

Analyzing cultural infrastructure building in MSAs proved to be a bit more complicated. Simply stating that one MSA experienced more building than another usually does not tell the full story. For example, comparing per capita total cost ratios across MSAs omits information regarding projects with different sources of support, which would help explain why some areas invested more than others (i.e., perhaps the MSA has a large university that supported the entire project). That being said, it is possible to present general statistics about MSAs, but more research is needed at some points to tell the full story.

The dataset of building projects represents 181 distinct MSAs, 48 states, and the District of Columbia. The only states not represented in the dataset are Montana and Vermont. Table I shows the top 10 MSAs in regards to total cost. While cities of all sizes invested into cultural building during this period, the largest cities (those with greater than two million in population) built the most. The top three MSAs ranked in order by total cost of building were also the three largest MSAs in the U.S. The New York-Northern New Jersey-Long Island, NY-NJ-PA MSA spent more on cultural infrastructure building during this period than any other MSA (\$1.6 billion). Ranked second and third, the Los Angeles-Long Beach-Santa Ana, CA MSA spent approximately \$950 million and the Chicago-Naperville-Joliet, IL-IN-WI MSA spent almost \$1.2 billion but was only the 16<sup>th</sup> largest MSA according to the 2000 Census, and the Washington-Arlington-Alexandria, DC-VA-MD-WV spent approximately \$980 million but was the 7<sup>th</sup> largest MSA. The top ten highest spenders comprised 52% of all spending on cultural building the U.S. between 1994 and 2008.

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Table I. Top	0 10 MSAs in	terms of	<b>Cost of Projects</b>
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MSA	Total Cost of all Building Projects
New York-Northern New Jersey-Long Island, NY-NJ-PA	\$1,582,283,893
San Francisco-Oakland-Fremont, CA	\$1,196,558,489
Washington-Arlington-Alexandria, DC-VA-MD-WV	\$979,420,165
Los Angeles-Long Beach-Santa Ana, CA	\$946,828,379
Chicago-Naperville-Joliet, IL-IN-WI	\$868,796,758
Miami-Fort Lauderdale-Miami Beach, FL	\$676,162,533
Boston-Cambridge-Quincy, MA-NH	\$545,099,432
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	\$449,726,754
Dallas-Fort Worth-Arlington, TX	\$436,905,861
Seattle-Tacoma-Bellevue, WA	\$357,325,520

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:**McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Table J lists the top 10 MSAs in terms of per capita total costs of cultural building projects. Ranked in order of per capita spending, however, the list of top spenders looks very different. Per capita, it was mainly small MSAs with fewer than 500,000 people that invested into cultural building the most. The only MSA that ranked in the top ten in terms of both total and per capita spending was the San Francisco-Oakland-Fremont, CA MSA. At the same time, it also had the most projects as compared to other top per capita spenders. For this reason, the average cost of each project in the San Francisco-Oakland-Fremont, CA MSA was not as high as it would have been if there had been very few projects. The Pittsfield, MA MSA had the highest per capita cost by far. But, with its reputation as one of the country's top cultural destinations, this was not surprising.

MSA	Per Capita Cost	Number of Projects	Average Cost Per Project	Total Cost
Pittsfield, MA	\$605.14	6	\$13,600,000	\$82,000,000
San Francisco-Oakland-Fremont, CA	\$423.56	22	\$54,400,000	\$1,200,000,000
Appleton, WI	\$394.33	2	\$39,900,000	\$80,000,000
Madison, WI	\$388.54	3	\$65,300,000	\$200,000,000
Lawrence, KS	\$384.59	2	\$19,300,00	\$39,000,000
Ann Arbor, MI	\$275.81	3	\$29,800,000	\$89,000,000
Charleston, WV	\$268.24	2	\$41,500,000	\$83,000,000
Springfield, MA	\$252.19	4	\$9,120,425	\$36,000,000
Greenville-Spartanburg-Anderson, SC	\$231.27	3	\$19,600,000	\$59,000,000
Pensacola-Ferry Pass-Brent, FL	\$221.43	3	\$30,500,000	\$91,000,000

Table J. Top 10 MSAs in terms of Per Capita Cost of Projects

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes **Source:**McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce; U.S. Census Bureau, Population Division.

In the previous section, I showed that cultural building increased in total cost over time. I also showed that the pursuit of PAC and museum projects, and projects located in the Southern region fueled this increase. Based on the analysis of MSAs, there is also evidence that not only were the same MSAs building more as the years progressed, but more MSAs started to build for the first time. Figure 20 shows the number of MSAs with at least one building project by year. It is evident from the figure that while the increase in cultural building was in part been fueled by the same MSAs building more, the increase was also fueled by more MSAs starting to build. In 1996, twenty-four MSAs started at least one cultural infrastructure building project; this figure rose to sixty-eight in 2001 and remained relatively stable until 2008. Between 1995 and 2002 there was definitely a strong uptick in the number of MSAs that started at least one building project.





Source:McGraw-Hill Construction, Inc.

Figure 21 illustrates the geographic distribution of MSAs with at least one project in 1994 as compared to 2008. While many of the MSAs highlighted certainly started other cultural projects before 1994, the maps help show the dispersion of cultural building throughout the U.S. in the targeted period. Cultural building activity seems to have spread up and down the coasts, as well as further inland, particularly into the Midwest portion of the U.S. and the Southern states. Projects even started popping up in the Great Plains.

Figure 21. Map of MSAs with at Least One Project



Source:McGraw-Hill Construction, Inc.

Figure 22 is similar to Figure 20, but it breaks down projects by type. Figure 22 shows the number of MSAs that started at least one museum, theater, or PAC between 1994 and 2008. While the trend increases for all types of building projects, the number of MSAs that started at least one museum or one PAC increased more than the number of MSAs that started at least one theater project. Three MSAs started building at least one theater in 1994 and this figure rose to ten MSAs in 2004. On the other hand, seven MSAs started at least one museum building project in 1994 and this figure rose to twenty-nine in 2001; eleven MSAs started at least one PAC building project in 1995 and thirty-five in 2004. As shown previously, the nation as a whole invested more into PAC cultural infrastructure building and museum cultural infrastructure building over time as compared to theater cultural infrastructure building.



Figure 22. Number of MSAs with At Least One Project by Type

Source: McGraw-Hill Construction, Inc.

The geographic distribution of MSAs with at least one cultural infrastructure building project by type (Figure 23) shows the marked difference between the number of MSAs that had theater building projects as compared to those who had museum and PAC projects. Therefore, based on the previous analysis of projects by type, it is not surprising that more MSAs had PAC projects than any other type of project.



### Figure 23. Map of MSAs with at Least One Project by Type

Source:McGraw-Hill Construction, Inc.

Table K shows the distribution of Census 2000 MSA populations of the MSAs represented in our dataset. The mean of MSA populations in the dataset is 4,480,958 and populations range from 66,533 to 21,199,865. The percentile distribution indicates that 50% of projects were located in MSAs with populations of 2,180,077 or less and 75% with populations of 5,221,801 or less. However, 25% of all projects were located in MSAs with populations of 602,894 or less, suggesting that smaller MSAs made up a large proportion of project investment between 1994 and 2008.

**Table K. Percentiles of MSA Populations** 

Percentile	Values
1%	90,864
5%	153,444
10%	251,494
25%	602,894
50%	2,180,077
75%	5,221,801
90%	9,519,338
95%	21,199,865
99%	21,199,865

Source:McGraw-Hill Construction, Inc.; U.S. Census Bureau, Population Division

I broke down MSAs into four categories: MSAs with populations 1) greater than or equal to two million, 2) greater than or equal to one million and less than two million, 3) greater than or equal to five hundred thousand and less than one million, 4) and less than five hundred thousand. Figure 24 shows the total cost of all projects across each category of MSA between years. The larger MSAs – those with populations over two million – experienced more of an increase in investment into cultural infrastructure building than smaller MSAs, especially between 1998 and 2001. Nevertheless, Figure 25 shows an interesting twist. Figure 25 shows the number of MSAs with at least one building project categorized by population level. The graph illustrates that while all categories of MSAs had more MSAs with at least one project over time, it was the largest category (MSAs with over two million people) and the smallest category (MSAs with less than five hundred thousand people) that experienced the greatest increases. The former is not surprising, but the latter is. Between 1994 and 1996, thirteen MSAs with populations of less than five hundred thousand had at least one building project; this figure rose to forty-three between 2000 and 2002. From the below figures we see that even though the largest MSAs continued to increase their investment in cultural infrastructure building over time, it was the largest and the smallest MSAs that increased their first-time investment into cultural infrastructure building.



Figure 24. Total Cost of Projects by Population Category of MSA by Year

Notes: Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. Source:McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce; U.S. Census Bureau, Population Division

Figure 25. Number of MSAs with At Least One Project by Population Category of MSA



Source:McGraw-Hill Construction, Inc.; U.S. Census Bureau, Population Division

I come to a number of conclusions from the analysis of cultural infrastructure building at the MSA level. First, larger MSAs invested the most money into cultural infrastructure building. I also showed that many MSAs invested into cultural infrastructure building for the first time over

this period. This first-time investment into cultural infrastructure building occurred mainly in museum and PAC projects, and less so in theater projects. Finally, while larger MSAs tended to increase their investment into cultural building over time more than smaller MSAs did, it was the larger *and* smaller MSAs that tended to increase their first-time investment into cultural building during this period.

### X. Ownership Trends and Statistics

The dataset identified each project as an academic-, government-, or private- venture. This ownership type does not indicate what proportion of funds was public and private – it only indicates who led the pursuit of the building project. However, ownership structure can give us a good idea of what types of institutions pursued building projects in this period.

Table L shows the distribution of the cost of cultural projects according to ownership type. The table illustrates that 54% of projects were private, 25% were government, and 21% were academic. Similarly, about 55% of the total cost of projects were private, 24% were government, and 22% were academic. The median costs of each type of project were about the same, but the most expensive project in the dataset was a private project.

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Table L. Cost of Projects by Ownershin

Region	Ν	Total	Mean	Median	Standard Deviation	Min	Max
Academic	155	\$3,404,698,057	\$15,937,584	\$10,719,439	\$15,608,267	\$4,000,000	\$101,762,760
Govt	182	\$3,648,060,264	\$20,622,743	\$11,057,487	\$32,807,288	\$4,094,826	\$335,142,670
Private	388	\$8,474,117,877	\$23,977,349	\$11,904,363	\$34,501,671	\$4,000,000	\$328,571,240

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:** McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Figure 26 shows the total cost of cultural building by ownership over time. The figure illustrates that investment in private-owned projects was generally higher than investment into other types of projects, but all types of projects increased their investment over time. Private-owned projects saw great increases between 1998 and 2001, government-owned projects spiked in various years, and academic-owned projects had a modest increase over time.





**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:** McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Table M illustrates what types of projects were more prevalent among ownership types. For example, the table illustrates that PACs were more prevalent among academic and government projects, and that museums were more likely to be private-owned. However, the private sector invested the most in each type of project.

Table M.	Cost of Pro	iects by	Ownership	and Type
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	Museums	PACs	Theaters
Academic	\$474,270,960	\$1,578,075,600	\$210,978,930
Government	\$1,094,504,300	\$2,569,885,100	\$88,949,788
Private	\$4,375,066,500	\$3,996,295,700	\$931,849,220

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:** McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

Finally, different types of projects tended to cluster in specific regions in the U.S. Table N shows the distribution of total cost among regions of each type of project. Again, privateowned projects were more prevalent in all regions. However, the Northeastern region invested more in academic-owned projects than government-owned projects, while the Midwestern, Southern, and Western regions did the opposite. The Northeastern region had far less money invested in government projects than other regions.

	Midwest	Northeast	South	West
Academic	\$509,572,910	\$530,814,780	\$756,252,530	\$673,685,310
Government	\$696,100,820	\$284,708,960	\$1,730,257,500	\$1,042,271,900
Private	\$2,617,251,100	\$2,348,404,600	\$2,543,789,500	\$1,793,766,200

Table N. Cost of Projects by Ownership and Region

**Notes:** Project costs adjusted to 2005 dollars using fixed investment nonresidential GPDI indexes. **Source:** McGraw-Hill Construction, Inc.; Bureau of Economic Analysis, U.S. Department of Commerce

In conclusion, the majority of cultural building projects started between 1994 and 2008 were privately-owned. Investment in all types of projects increased over the fifteen-year period. Museums were more likely to be privately-owned. Academic and government institutions invested more in PACs than museums or theaters. Finally, all regions, except for the Northeastern region, invested more in government-owned projects- versus academic-owned projects.

### XI. Conclusion

In this paper, I presented findings based on an analysis of cultural infrastructure building in the U.S. between 1994 and 2008. In the first section, I discussed general trends and statistics about all cultural infrastructure building in the U.S. The discussion included the analysis of costs (total, mean, and median cost) of all cultural infrastructure building projects, as well as a comparison of cultural infrastructure building expenditures to expenditures in other social and entertainment sectors. The next section examined cultural infrastructure building by type of building project (museums, theaters, and PACs), followed by location. I included findings from an analysis of the cost of building across Census regions. I also discussed building in regards to the MSAs where projects were located. I concluded with an analysis of building project by type of ownership.

Through my analysis, I draw several conclusions about the landscape of cultural infrastructure building in the U.S. between 1994 and 2008. First, it is clear that the total cost of cultural infrastructure building in the U.S. between 1994 and 2008 increased substantially. This increase was the greatest between 1998 and 2001. Secondly, as compared to capital expenditures in selected social sectors and other entertainment sectors, investment into cultural infrastructure

building was low, but the rate of change of investment into cultural infrastructure building was higher than or comparable to rates of change in other social and entertainment sectors, particularly between the years 1999 and 2003. There was greater investment into PACs than other types of buildings. The Southern region of the U.S. had higher levels of raw dollar investment into cultural infrastructure building, but all regions had increased levels of investment relative to other regional economic figures such as GDP and DPI, particularly between the years 1999 and 2003. All regions increased their investment over time relative to DPI. All regions, except for the Northeastern region, invested more into PACs than museums and theaters. Large MSAs tended to invest more money into cultural infrastructure building than did small MSAs, and large MSAs increased their investment into cultural infrastructure building over the years more than small MSAs. However, large and small MSAs increased their first-time investment into cultural infrastructure building. Finally, investment into privately-owned projects was greater than academic and government-owned projects, and all ownership types increased their investment over time. Museums tended to be privately-owned. Government and academic institutions pursued PAC projects more than other types. Furthermore, most regions invested more into government-owned projects as compared to academic projects. However, all regions had more privately-owned projects than any other type.

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