How Do State Arts Appropriations Affect State Economic Growth?

John Deskins, Sally Deskins, and Brian Hill⁺

ABSTRACT: In this study we examine the effect of public spending for the arts on state economic growth among U.S. states. While there is a large literature on the effects of many elements of public spending on economic growth, this literature has ignored spending for the arts. We extend this literature by conducting a series of regression models using a panel of state-level data for the years 1992 through 2003 to identify the effect of public spending for the arts on state economic growth when such spending is financed through own-source revenues. Results indicate that increasing state arts spending above current levels, financed through own-source revenues, leads to an overall reduction in state economic growth. While this finding does not indicate that arts spending as a whole adversely impacts economic growth, it suggests that state arts spending is slightly above the optimum level, to the extent that the goal of such spending is to maximize economic growth.

Keywords: *Arts, Regional Economic Growth, Public Spending*

JEL Classifications: *H4, H7, R1, Z11*

1. INTRODUCTION

Government spending for the arts is often viewed as a way to promote economic development by enhancing the stock of human capital and contributing to the neighborhood development effort that is crucial for productivity growth and economic prosperity (Hart, 1984).¹ Especially in the U.S., arts enthusiasts advocate for increases in public arts expenditures because policymakers may consider this a way to enhance the general attractiveness of a community, and therefore better enable local businesses to attract the best employees. Thus, one potential approach to supporting public subsidization of the arts in this manner follows this logic: a) a healthy urban core is essential for long-run regional economic growth, b) arts institutions play important roles in preserving and rejuvenating core urban centers, and c) therefore, arts institutions are essential for the long-run economic health of regional economies. See Seaman (2003a and 2003b), who considers this argument but finds, at best, mixed evidence in its favor.² Further, arts institutions may be especially important since they tend to attract individuals with

⁺ John Deskins (*contact author*) is Assistant Professor in the Department of Economics and Finance, Creighton University, 2500 California Plaza, Omaha, NE 68178. E-mail: johndeskins@creighton.edu; Brian Hill is Assistant Professor at the Department of Business and Finance, Salisbury State University; Sally Deskins is Instructor at the Metropolitan Community College, Omaha, Nebraska.

¹ In this analysis we refer to “arts” spending as state funding supporting nonprofit or government organizations, activities or individuals that help to create and sustain a climate encouraging freedom of thought, imagination and inquiry and the material conditions facilitating the release of this creative talent such as arts councils, museums, art centers or theatres (National Endowment for the Arts, 2007). We also note that a second key component of public support for the arts is the set of various tax subsidies that arts organizations receive from all levels of government in the U.S. This analysis, however, is restricted to state expenditures in support of arts organizations.

² See Netzer (1978) for an in-depth discussion of various justifications for public support for the arts. Also see, for example, Brooks (2005) and Powell (2005) for analyses of the value of the arts for an economy from the perspective of sociological impacts, educational impacts, and the like. See Thompson et al. (2002) for a contingent valuation approach to determining household willingness to pay for the arts. See Lee et al. (2004) for an analysis of creativity in a region and new firm formation.

above average skills and, correspondingly, above average incomes (Cwi, 1980), or more generally, the “creative population,” which may aid economic prosperity (Florida, 2004). Other reasons for public support for the arts include the idea that a strong arts community may serve to enhance tourism in a region, further adding to regional economic development, and the idea that arts organizations can have positive external benefits in other ways. To illustrate recent public desire for government support for the arts, note that state arts appropriations increased by 10 percent from 2006 to 2007 (although public spending for the arts has not always increased at such high rates).

Despite the potential benefits of public support for the arts in promoting economic development, other potentially negative effects could also follow such spending. In particular, public spending for the arts could have the potential to reduce economic activity if accompanied by increases in taxes, which may reduce economic activity, or by reductions in other areas of government spending, which may positively affect economic activity. This potentially negative effect may be strengthened if crowding-out of private arts spending or donations accompany public spending for the arts.^{3,4}

Despite the potentially significant effect of public arts spending on regional economic activity, very little econometric research has examined this relationship; hence there has been a dearth of what Seaman (2003a) has called “ex post verification” evidence in the arts (in contrast to other areas, such as sports). In fact, no studies have been identified that use regression analysis to study the effect of public arts spending on economic growth among U.S. states broadly. There is a large body of research that has examined the effects of various categories of public expenditures, such as education and transportation spending, on regional economic development, but spending for the arts has been ignored in this literature.⁵ Only one study has been identified that uses regression analysis to specifically examine the effects of public spending for the arts on economic growth. Specifically, Skinner (2006) finds that systematic government provision of blockbuster exhibits in Jackson, Mississippi in the 1990s significantly increased local area employment.⁶ The study, however, only considers one region of the U.S. and only one type of public support for the arts.⁷ Also note that there is some casual empirical evidence (but not

³ Dokko (2009) finds that, on average, every dollar of NEA funding for the arts reduces private contributions by 20 cents. See also Brooks (2000).

⁴ Others have argued against public support for the arts arguing that such support may dampen the creative process. Writer John Updike famously said, “Government money for the arts, I fear, can only deflect artists from their responsibility to find an authentic market for their products” (Cowen, 2006, p.10). The French impressionist artists of the 19th century were also strong against any government support of the arts arguing that artists only flourish by turning to private markets for their support (p.100). Some contemporary American artists also exhibit disapproval; painter Larry Rivers claimed that “the government taking a role in art is like a gorilla threading a needle. It is at first cute, then clumsy, and most of all impossible” (p. 66). Frey (1999) reasons that state support for the arts can “crowd-out” personal artistic motivation and inventiveness.

⁵ See Taylor and Brown (2006) for a recent example of research in this area and Fisher (1997) for a summary of 20 studies in the area.

⁶ Blockbuster exhibits are visual art exhibitions of art that are transported for international exhibitions, which allow for greater exposure of special collections otherwise not seen by the public (Skinner, 2006).

⁷ A second body of research that has examined the effects of arts spending on economic activity is “economic impact studies” of the arts. See, for example, Americans for the Arts (2007), Colorado Business Committee for the Arts (2006), and Stronge (2004). These studies use what Seaman (2004) refers to as the conventional or “naïve” economic impact model approach. Generally these studies estimate the effect of an art exhibit (or some other even, such as a sporting event) by applying the total spending by event visitors to some multiplier function, which translates into what can be thought of as a short-run aggregate demand associated with the particular event. This literature is fundamentally different from that previously discussed that uses regression analysis to understand the relationship between public spending and economic activity. To illustrate this literature, Americans for

econometric) that the relationship between some measures of arts activity broadly speaking in cities is not strongly related to economic prosperity. For example, a very simple examination of Florida's (2004) index of cities with a higher "creativity index" does not correlate well in a simple univariate comparison with employment growth rates.

We extend the larger body of research that examines the effects of public expenditures on regional economic development (see, e.g., Fisher, 1997) through an analysis of the effect of public spending on the arts on economic growth. To do this, we perform an econometric analysis consisting of a series of regression models of regional economic activity on public spending on the arts, using a panel of state-level data for the years 1992 through 2003. We construct our analysis so as to avoid endogeneity concerns with economic activity and public arts spending. This analysis will provide an understanding of whether the positive effect of public spending for the arts outweighs the negative effect of the corresponding taxes on the margin, and of course, of the magnitude of the net marginal effect. Results will provide policy-relevant information on the appropriate level of public spending for the arts since the impact on economic growth is surely a key determinant in the debate on the appropriate level of public support for the arts.

The analysis proceeds as follows: Section 2 details the empirical strategy and the data used. Section 3 presents a discussion of the results, and Section 4 offers a conclusion. Results indicate that increases in public arts spending lead to reductions in gross state product (GSP) and state employment growth when financed through own-source revenues. More specifically, we find that an increase of \$1 per person for state government spending for the arts is associated with a decline in nongovernment GSP growth of around 0.58 percentage points and a decline in private sector employment growth of around 0.26 percentage points, when financed through own-source revenue. Given the magnitude of these results, a noticeable change in economic growth would require a large proportional change in spending on the arts. On the other hand, if policymakers determine that spending for the arts should be raised for reasons other than the promotion of economic growth, they should take comfort in knowing that moderate proportional increases in arts spending would not likely reduce employment or GSP growth noticeably.

Note that this research is hopefully only a first step into a much larger agenda that investigates the impact of various sources of funding for the arts on regional economic activity. Indeed, while state support for the arts is important and constitutes the majority of funding for state arts agencies, federal and local funding are also important, and public support as a whole is a small fraction of total arts funding when private contributions and the earned income of arts organizations are considered. See National Endowment for the Arts (2007) for an in-depth analysis of funding for the arts in the U.S.

2. EMPIRICAL DESIGN AND DATA

In this study we quantify the effect of state spending for the arts on state economic growth through the estimation of a series of regression models of state economic growth on state arts spending and a number of appropriate control variables. Our primary regression model is summarized as follows:

the Arts, in a highly publicized study, state "Nationally, the nonprofit arts and culture industry generates \$166.2 billion in economic activity annually..." (Americans for the Arts, 2007, p. 1).

$$(1) \text{ Economic Growth}_{i,t+1} = \beta_0 + \beta_1 \text{ State Arts Spending}_{i,t} + \beta_2 \text{ Non-Arts State Government Spending}_{i,t} + \beta_3 \text{ Total Federal Transfers}_{i,t} + \beta_4 \text{ Total Budget Surplus}_{i,t} + \beta_5 \text{ Economic Activity}_{i,t} + \beta_6 x_{it} + \beta_7 T_t + \varepsilon_{it}$$

where i and t are state and year indices, ε is a random error term, and $\mathbf{x}$ represents a vector of other controls that are discussed below. All regressions include temporal fixed effects, as denoted by T_t , to control for time-specific factors that are not included in the model. All models are estimated using a panel of state-level data from all 50 U.S. states for the years 1992 through 2003, resulting in 600 observations. Table A1 in the Appendix presents summary statistics for all variables for the first and last years of the dataset, and Table A2 provides variable descriptions and source notes.

As illustrated, we examine economic growth rather than the level of economic activity.⁸ We choose this approach because policymakers often target economic growth rates rather than the level of economic activity. This approach is also useful in that by specifying our dependent variable in this fashion we avoid the familiar problem of endogeneity of arts spending with respect to economic activity. Economic activity is measured as non-government Gross State Product (GSP) as well as total private sector employment in the state.⁹ Existing research on the relationship between economic growth and public expenditures more generally has examined both of these measures of economic activity. However, only one measure is typically used in any one study. We consider both to provide for greater robustness.

State arts spending is the primary variable of interest. This variable captures total state government spending for the arts and is measured both in per capita terms and as a share of state personal income (SPI). To control for scale issues, it is common in the existing literature to measure fiscal variables in either of these ways, but any one study usually only considers one measure. We examine both to allow for a greater degree of robustness. Statistics for both measures of arts spending are presented in Table 1, by state for the first and last years of our dataset. The first two columns of the table present arts spending measured in per capita terms while the third and fourth columns present arts spending measured as a share of SPI. In the table, and in all of the analysis that follows, arts spending is adjusted for inflation to the 2003 price level using the consumer price index. As illustrated in Table 1, there is a great deal of variation in these figures both among states and across time.

Since any one change in a government's expenditures necessarily corresponds to change in other areas of spending, revenue, or the budget surplus, in order to obtain an unbiased estimate of the effect of arts spending we must control for all elements of the state budget.¹⁰ For example, in the context of this study, an increase in arts spending must correspond to either an increase in taxes, an increase in transfers from another government, a decrease in the budget surplus, a decrease in another area of spending, or some combination of the above. Consider the following equation that summarizes the state budget:

⁸ Specifically, we use the economic growth rate from time t to time $t+1$, which we calculate as follows: $\text{Ln}(\text{Economic Activity}_{t+1}/\text{Economic Activity}_t)$.

⁹ We focus on private sector economic growth but all of the estimations below were also performed on total economic growth. These estimations resulted in very similar results compared to those that use private-sector economic growth and are available from the authors upon request.

¹⁰ See Dalenberg and Partridge (1995), Evans and Karras (1994), or Helms (1985) for examples of research that emphasize the necessity of including all elements of the government budget constraint to obtain unbiased estimates of the effect of the particular budgetary element of interest.

TABLE 1. Arts Spending across U.S. States: 1992 and 2003

	State Arts Spending per Capita ⁺		State Arts Spending Spending/SPI (%)	
	1992	2003	1992	2003
Alabama	0.678	1.105	0.0029	0.0041
Alaska	2.758	0.728	0.0085	0.0021
Arizona	0.809	0.747	0.0033	0.0027
Arkansas	0.582	0.534	0.0026	0.0021
California	0.650	0.591	0.0021	0.0017
Colorado	0.631	0.219	0.0022	0.0006
Connecticut	1.194	2.751	0.0031	0.0062
Delaware	2.502	2.035	0.0080	0.0058
Florida	1.617	1.822	0.0058	0.0059
Georgia	0.611	0.532	0.0023	0.0018
Hawaii	12.591	4.974	0.0385	0.0158
Idaho	0.930	0.645	0.0040	0.0025
Illinois	0.982	1.467	0.0032	0.0042
Indiana	0.637	0.562	0.0025	0.0019
Iowa	0.684	0.441	0.0027	0.0015
Kansas	0.559	0.576	0.0021	0.0019
Kentucky	1.443	1.133	0.0062	0.0042
Louisiana	0.272	1.129	0.0012	0.0042
Maine	0.657	0.590	0.0027	0.0020
Maryland	1.761	2.265	0.0054	0.0059
Massachusetts	0.808	1.172	0.0024	0.0029
Michigan	0.860	2.299	0.0031	0.0071
Minnesota	1.190	2.488	0.0041	0.0071
Mississippi	0.253	0.594	0.0013	0.0025
Missouri	1.042	0.657	0.0040	0.0022
Montana	1.575	0.358	0.0068	0.0013
Nebraska	0.998	0.730	0.0038	0.0023
Nevada	0.485	0.662	0.0016	0.0020
New Hampshire	0.595	0.517	0.0020	0.0015
New Jersey	1.771	2.579	0.0049	0.0063
New Mexico	1.074	0.948	0.0048	0.0037
New York	2.334	2.763	0.0069	0.0075
North Carolina	0.934	0.693	0.0037	0.0024
North Dakota	0.615	0.783	0.0026	0.0026
Ohio	1.256	1.171	0.0046	0.0038
Oklahoma	1.456	1.170	0.0062	0.0043
Oregon	0.631	0.278	0.0024	0.0009
Pennsylvania	1.101	1.145	0.0038	0.0035
Rhode Island	1.213	2.449	0.0042	0.0073
South Carolina	1.321	0.950	0.0057	0.0035
South Dakota	0.776	0.710	0.0032	0.0024
Tennessee	0.383	0.861	0.0015	0.0029
Texas	0.249	0.262	0.0010	0.0009
Utah	1.673	1.088	0.0076	0.0041
Vermont	0.984	0.862	0.0038	0.0028
Virginia	0.317	0.591	0.0011	0.0017
Washington	0.585	0.480	0.0020	0.0014
West Virginia	1.291	1.538	0.0059	0.0061
Wisconsin	0.797	0.462	0.0030	0.0015
Wyoming	1.005	0.873	0.0038	0.0026

Note: ⁺ Per capita figures are adjusted to the 2003 price level.

$$(2) \text{ Own-Source Revenue} + \text{Intergovernmental Transfers} = \\ \text{Arts Spending} + \text{Non-Arts Spending} + \text{Surplus}$$

To provide such a control for the entire government budget, we simply include all but one of these budget elements into our estimating equation. It is necessary to omit one element of the government budget to avoid perfect multicollinearity. The choice of which variable to omit is arbitrary from an econometric perspective; we chose to omit own-source revenues, as depicted in Equation 1 above. Consider the proper interpretation of the estimated coefficient on arts spending that results from the econometric structure we have adopted: a) Since two elements of the state budget must move at any one time, and b) since intergovernmental revenue, the budget surplus, and non-arts spending are econometrically held constant, in our model the estimated effect of an increase in arts spending on economic growth (B_1) necessarily corresponds to an increase in own-source revenue, i.e., B_1 is interpreted as the effect of an increase in arts spending that is financed through an increase in own-source revenue. (For illustrative purposes, if we had instead excluded non-arts spending and included own-source revenue, the coefficient on arts spending would be interpreted as the effect of an increase in arts spending that is financed through a decrease in other areas of spending.)

Previous studies in this literature that have used a similar econometric structure (basically Helms (1985) and thereafter) have often taken the following approach, involving disaggregating total own-source revenue into several components and then omitting a particular revenue-side element (rather than simply total own-source revenue). These earlier studies often take this approach because their focus is not only on a particular expenditure side element, but also on one or more specific taxes. Since our focus is exclusively on one expenditure side element, arts spending, and not on any specific revenue-side element, we (implicitly) aggregate all particular state taxes, fees, and other own-source revenues in the budget equation and then omit this total own-source revenue measure. As a result, our results could loosely be interpreted as a change in arts spending financed simply through the state's general fund. Correspondingly, our results do *not* address a situation in which arts spending is financed through some tax or fee that is specifically earmarked for arts spending.¹¹

Both the arts spending and the total non-arts state spending variables have ambiguous theoretical effects on economic activity: Firms and individuals may be more likely to locate in a state with greater expenditures due to the benefits of public arts spending and other public goods and services, corresponding to the arguments asserted above. On the other hand, the marginal tax burden associated with higher public expenditures could induce individuals and firms to locate elsewhere to avoid higher tax burdens. We caution that our analysis does not evaluate the economic growth implications of arts spending as a whole, but an econometric approach such as the one used here only considers the joint effects of arts spending (or other public spending) and own-source revenues based on the marginal variation present in our dataset. Stated another way, this study evaluates whether arts spending is typically above or below the optimum levels for economic growth for the states in our dataset and for the time period of analysis. In other areas of the literature on the effects of public expenditures on economic growth, studies have found wide variation in the effects of public spending depending on the particular type of spending

¹¹ This analysis could be expanded in future research to disaggregate total own-source revenue into its various components and then structure the econometric specification such that results are interpreted as a change in arts spending corresponding to a parallel change in income taxes generally, sales taxes generally, a tax that is specifically earmarked for arts spending (to the extent that sufficient variation is present), etc.

(education, transportation, welfare, etc.), methodology, and time period of analysis. One recent study, however, which analyzed various expenditures of the public budget, more often than not found a negative relationship between public expenditures and regional economic activity, and that the negative effect had grown (in absolute value) over time (Taylor and Brown, 2006).

Other Controls. Because the economic growth of a state depends on factors beyond government fiscal policies, we need to account for these other variables in order to more fully understand the relationship between arts spending and economic growth. First, we include the overall level of local government spending within states as a control, measured either in per capita or SPI share terms. Unsurprisingly, we suspect that, if state government spending has the potential to affect economic growth, local spending does as well. Next, we include the level of non-government GSP or private-sector employment at time t among the set of other control variables (corresponding to either the GSP growth or employment growth models). The level of economic activity may impact economic growth due to a catch-up effect in which states with lower levels of economic activity initially grow faster than those with higher levels of initial economic activity – termed the convergence hypothesis – which would result in a negative coefficient on the variable. Note that any state-specific error - the state fixed effect - is captured within this variable, thus there is no potential for bias associated with a correlation between a given explanatory variable and a state-specific error (since the state-specific error is not omitted).¹² We measure the level of economic activity in natural logs to control for scaling effects from large variation in state size.

The other control variables in our model are consistent with the literature that explains the determinants of economic activity (see for example, Wasylenko and McGuire (1985) or Fisher (1997)). Most of this literature models locational decisions by constructing profit functions (or related functions) to determine profitability, and correspondingly, the decision to locate in a particular region. The literature includes variables such as measures of regional market demand, costs of producing in a particular location, and public policies.

Two measures of input costs are included because high input costs may reduce economic activity: the average hourly wage for manufacturing workers in a state and a measure of overall energy prices in a state.¹³ State population and median income are included to control for state size and demand. Population density is included because a high population concentration may influence the ability of firms to achieve economies of scale in operation. Also, population density is likely correlated with the demand for arts spending, further necessitating its inclusion as a control to avoid omitted variable bias. Next we include a measure of the educational attainment of the state's population (the share of the state's population over age 25 that holds at least a bachelor's degree) since this helps to proxy for the human capital stock in a state and is therefore likely to affect economic growth, and is also likely correlated with arts spending. State unemployment rates are included to proxy for the general economic health of the state.

¹² See Wooldridge (2001) for more detail on the state fixed effect.

¹³ The energy price index represents the cost of producing one million BTUs of energy based on a weighted average of the cost of energy from different sources such as coal, natural gas, nuclear, etc., in each state.

TABLE 2. Baseline Regression Results: Economic Growth on State Arts Spending

Variable	Spending per Capita		Spending as a Share of SPI	
	Non-Government GSP Growth	Private Employment Growth	Non-Government GSP Growth	Private Employment Growth
<i>Arts Spending per Capita</i>	-0.582*** (0.124)	-0.260*** (0.049)	-	-
<i>Non-Arts Expenditures per Capita</i>	0.0001 (0.0002)	-0.0001 (0.0001)	-	-
<i>Federal Transfers per Capita</i>	-0.001* (0.001)	-0.002*** (0.0003)	-	-
<i>Budget Surplus per Capita</i>	0.001*** (0.0003)	0.0002* (0.0001)	-	-
<i>Arts Spending/SPI (%)</i>	-	-	-175.185*** (39.422)	-80.387*** (15.753)
<i>Non-Arts Expenditures/SPI (%)</i>	-	-	0.010 (0.057)	-0.020 (0.023)
<i>Federal Transfers/SPI (%)</i>	-	-	-0.507** (0.210)	-0.448*** (0.083)
<i>Budget Surplus/SPI (%)</i>	-	-	0.349*** (0.080)	0.072** (0.032)
<i>Local Government Spending per Capita</i>	0.0001 (0.0002)	0.0003*** (0.0001)	-	-
<i>Local Government Spending/SPI (%)</i>	-	-	0.046 (0.072)	0.077*** (0.028)
<i>Ln(Non-Government GSP)</i>	-0.171 (0.374)	-	-0.400 (0.371)	-
<i>Ln(Private Sector Employment)</i>	-	-0.338** (0.151)	-	-0.372** (0.150)
<i>Population (millions)</i>	0.010 (0.045)	0.013 (0.018)	0.028 (0.045)	0.011 (0.018)
<i>Education (%)</i>	-0.050 (0.043)	-0.052*** (0.017)	-0.046 (0.042)	-0.049*** (0.017)
<i>Median Income (thousands)</i>	0.002 (0.034)	-0.010 (0.014)	-0.014 (0.033)	-0.029** (0.013)
<i>Population Density</i>	-0.373 (0.791)	-0.198 (0.308)	-0.268 (0.799)	-0.224 (0.312)
<i>Average Wage</i>	-0.136 (0.096)	-0.041 (0.039)	-0.151 (0.096)	-0.047 (0.039)
<i>Energy Price</i>	0.013 (0.111)	0.144*** (0.045)	-0.030 (0.112)	0.125*** (0.045)
<i>Unemployment Rate (%)</i>	-0.636*** (0.138)	-0.185*** (0.054)	-0.595*** (0.140)	-0.172*** (0.055)
<i>Agricultural Share (%)</i>	-0.338*** (0.093)	-0.129*** (0.036)	-0.358*** (0.092)	-0.137*** (0.036)
<i>Manufacturing Share (%)</i>	-0.074*** (0.024)	-0.059*** (0.010)	-0.067*** (0.024)	-0.056*** (0.010)
<i>Age 25-44 (%)</i>	-0.092 (0.107)	-0.133*** (0.042)	-0.123 (0.108)	-0.148*** (0.043)
<i>Age 45-64 (%)</i>	-0.044 (0.112)	0.045 (0.045)	-0.021 (0.113)	0.038 (0.045)
<i>Age 65 and older (%)</i>	-0.095 (0.097)	-0.177*** (0.039)	-0.111 (0.097)	-0.175*** (0.039)
<i>Constant</i>	20.090*** (5.457)	16.216*** (2.600)	25.030*** (5.684)	18.615*** (2.707)
<i>R²</i>	0.281	0.609	0.286	0.609

Notes: Entries are fixed-effects panel regression coefficients with standard errors in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels. Regressions include time fixed effects. All percentages are on a 0-100 scale. Government expenditure variables are measured in thousands and are adjusted for inflation to the 2003 price level.

Measures of the intensity of the agricultural and manufacturing sectors (e.g., the share of a state's GSP that is in the agricultural and manufacturing sectors) are added to control for the differential impacts each sector has on state economies. Because different parts of the population may have differing impacts on state growth, we account for the age distribution of a state's population by including three variables to denote the percentage of a state's population that is between the ages of 25 and 44, between the ages of 45 and 64, and over the age of 65.

3. RESULTS AND DISCUSSION

Per Capita Results. All regression results are presented in Table 2. We begin with a discussion of results for the models in which arts spending is measured in per capita terms, which are presented in the first two columns of the table. Results indicate that higher levels of state spending for the arts are associated with lower levels of GSP or employment growth. This result implies that the negative marginal effect that increased own-source revenues could have on economic growth dominate the positive marginal effect that arts spending may have on economic growth. More specifically, results indicate that a \$1 increase in arts spending per capita leads to a reduction in private-sector GSP growth of 0.582 percentage points, when financed through own-source revenues. Further, we find that the same change in state arts spending is associated with a 0.26 percentage point decline in the private-sector employment growth rate. These magnitudes translate into elasticities of -0.25 for GSP growth and -0.18 for employment growth, based on the average GSP and employment growth rates of 2.89 percent and 1.79 percent, respectively.¹⁴

SPI Share Results. We present results from the models in which arts spending is measured as a share of state personal income in the third and fourth columns of Table 2. Our result is generally consistent between the two specifications. Here results indicate that a one-one-hundredth of a percentage-point increase in state arts spending/SPI is associated with declines in GSP growth and employment growth of 1.75 percentage points and 0.80 percentage points, respectively. These effects translate into elasticities of -0.25 and -0.19 for GSP and employment growth, respectively.¹⁵ These elasticity estimates in both the per capita and SPI share models fall well into the range of elasticity estimates surrounding other types of public spending (such as transportation, education, and the like) reported in the literature review by Fisher (1997).

Turning to the other controls in both models, results do not identify a statistically significant relationship between non-arts government expenditures and economic growth in any of the four specifications. This finding implies that the benefits of all non-arts state government spending in the aggregate counterbalances the associated own-source revenue costs on the margin. We cannot relate this finding to earlier research directly since earlier research has focused on other particular elements of public spending such as education, transportation, etc., and therefore did not aggregate spending as we have done. However, since earlier research has commonly found positive relationships between some elements of public spending and economic activity and negative relationships with other elements of public spending (see Taylor and Brown, 2006, for example), it is plausible that all of these effects combine to result in a zero effect in the aggregate.

¹⁴ These elasticities imply that a one-percent increase in arts spending per capita yields a 0.25 and a 0.18 percent decrease in GSP and employment growth, respectively.

¹⁵ These elasticities imply that a one-percent increase in arts spending per SPI yields a 0.25 and a 0.19 percent decrease in GSP and employment growth, respectively.

The finding associated with non-arts state government spending can also be related to state arts spending. Following several previous studies that use our same basic approach to analyze public spending, we can subtract the coefficient on non-arts state government spending from the coefficient on arts spending to arrive at the estimated effect of an increase in arts spending financed through a reduction in other areas of spending (in contrast to our baseline interpretation of a change in arts spending financed through own-source revenue). However, since we do not find statistical significance of the coefficient on non-arts spending in any of the four models (and conclude that that coefficient is zero), these results indicate that the effect of an increase in arts spending financed through reductions in other areas of public spending does not differ from our basic result surrounding arts spending.

Results indicate a statistically significant and negative relationship between federal transfers and economic growth. This result does not make intuitive sense as a higher level of federal transfers, corresponding to lower own-source revenues, should be a positive factor for economic growth in states. However, Taylor and Brown (2006) and Dalenberg and Partridge (1995), for example, found a statistically insignificant relationship between federal transfers and economic activity in similar specifications, and even a small negative effect in a few cases. In contrast to this reasoning, this result could be picking up the possibility that federal transfers are higher when expected economic growth in the near future is lower, thus resulting in a negative coefficient. We will point out that the magnitude of this effect is small, thus lessening our concern over this counterintuitive result in that it simply may be a statistical anomaly. Results also identify a statistically significant, but small, positive relationship between budget surplus and economic growth in all four models. Also, results indicate that higher local government expenditures lead to higher levels of state employment growth.

While the fiscal variables are the focus of this study, results from other control variables are worthy of consideration. First, we find that the initial level of economic activity is statistically significant in the employment growth models, providing evidence of a catch-up effect associated with employment growth among states during the time frame of analysis. Results identify a small and negative relationship between the percentage of a state's population that holds a college degree or higher and employment growth. This result stands in contrast to some earlier research (e.g., Dalenberg and Partridge, 1995), which failed to statistically identify a relationship between educational attainment and employment), and much of the earlier literature did not include educational attainment as a control variable. Further, while a finding of a negative relationship between educational attainment and the *level* of employment would be surprising, the finding of a negative relationship between educational attainment and employment *growth* is not necessarily. It could be possible that those workers with higher educational attainment command higher wages and salaries, and this in turn raises input costs, thus leading to a reduction in employment growth (recall that our wage measure only captures manufacturing wages).

While most studies have failed to statistically identify a relationship between energy prices and economic activity (Wasylenko, 1997), our results identify a positive relationship between energy prices and employment growth. While this result runs counter to our general notion discussed previously, this finding may be driven by the few states for which energy extraction is vital to economic activity. For these states, it would actually be expected to experience a positive relationship between energy prices and employment growth. However, this hypothesis requires more research for verification. As expected, a state's unemployment rate is

negatively associated with either measure of economic growth; this result has been found in the previous literature almost universally (see Taylor and Brown (2006) or Dalenberg and Partridge (1995) for examples). Unsurprisingly, results indicate that a larger share of total GSP in the agricultural or manufacturing sectors is associated with slower economic growth. States with a higher population share in the 25-44 age group or in the 65 and older age group tend to have lower rates of employment growth relative to states with relatively more residents in the under 25 age group. These results are not surprising and are consistent with previous research (Dalenberg and Partridge (1995) for example).

4. CONCLUSIONS

In this paper we examine the relationship between public spending for the arts and state economic growth using a panel of state-level data for the years 1992 through 2003. This research extends the larger body of work on the effects of various elements of public spending on economic growth, which has failed to examine arts spending specifically. An analysis of public arts spending is important since increased levels of spending for the arts are often seen as a way to promote economic development. However, higher levels of spending for the arts could negatively affect economic activity if they are financed through taxes, which could harm economic growth.

Results indicate that higher levels of public spending for the arts that are financed by own-source revenues are associated with lower rates of growth in gross state product and employment. Specifically, we find that a \$1 increase in state arts spending per capita leads to a reduction in non-governmental GSP growth of nearly 0.6 percentage-points and a reduction in private-sector employment growth of 0.26 percentage-points, when financed through own-source revenues. Results are also robust to a specification in which arts spending is measured as a share of state personal income. Overall, results imply that the negative marginal effects associated with higher taxes outweigh the positive marginal effect that arts spending may have on economic growth, indicating that arts spending is above the optimum level, from the perspective of promoting economic growth alone, for the typical state during our period of analysis. Here we caution the reader again that in this study we simply weigh the effect of arts spending against the generic effect of total own-source state government revenues. We hope to consider the joint effect of arts spending in conjunction with more specific funding sources, such as a tax or fee that is specifically earmarked for arts activities, in future research.

While the results are statistically significant, based on these results a very large increase in arts spending, proportionally, would be required to generate a noticeable decrease in economic growth. Overall, if policymakers determine that arts spending should be increased by a moderate proportion for some reason other than to promote economic growth, all else equal, they should know that the negative effect on economic growth would likely be small. For example, according to these results, an increase in arts spending per capita of 25 percent over its average for our entire sample period (inflation adjusted) would only reduce private-sector GSP growth by 0.18 percentage points, relative to a sample average private-sector GSP growth rate of 2.9, and private-sector employment growth by 0.08 percentage points, relative to its sample average of 1.8 percent.

While this study has made an important initial analysis of the effects of public spending for the arts on economic growth at the U.S. state level, we hope that, to the degree that data will allow, future research can expand this analysis to consider specific types of arts spending such as

museums, theatres, art exhibits, etc., and other sources of spending such as local government, the national endowment for the arts, and private contributions.¹⁶

REFERENCES

- Americans for the Arts. (2007) "Arts & Economic Prosperity III: The Economic Impact of Nonprofit Arts and Culture Organizations and their Audiences," last retrieved in November 2010 from http://www.artsusa.org/pdf/information_services/research/services/economic_impact/aepiii/national_report.pdf.
- Brooks, Arthur C. (2005) "A Question of Morality: Artists Values and Public Funding for the Arts," *Public Administration Review*, 65, 8–17.
- _____. (2004) "In Search of True Public Arts Support," *Public Budgeting and Finance*, 24(2), 88–100.
- _____. (2000) "Is There a Dark Side to Government Support for Nonprofits?," *Public Administration Review*, 60, 211–218.
- Clark, David E. and James R. Kahn. (1988) "The Social Benefits of Urban Cultural Amenities," *Journal of Regional Science*, 28, 363–377.
- Colonna, Carl M. (1995) "The Economic Contributions of Volunteerism toward the Value of Our Cultural Inventory," *Journal of Cultural Economics*, 19, 341–350.
- Colorado Business Committee for the Arts. (2004) "Economic Study of Metro Denver Culture," last accessed in November 2010 from <http://www.cbca.org/econbiannual2004.asp>.
- Cowen, Tyler. (2006) *Good and Plenty*. Princeton, NJ: Princeton University Press.
- Currid, Elizabeth. (2007) *The Warhol Economy: How Fashion, Art and Music Drive New York City*. Princeton, NJ: Princeton University Press.
- Cwi, David. (1980) *The Role of Arts in Urban Economic Development*. Washington, D.C.: Economic Research Division Economic Development Administration.
- Dalenberg, Douglas R. and Mark D. Partridge. (1995) "The Effects of Taxes, Expenditures, and Public Infrastructure on Metropolitan Area Employment," *Journal of Regional Science*, 35, 617–640.
- Dokko, Jane K. (2009) "Does the NEA Crowd Out Private Charitable Contributions to the Arts?," *National Tax Journal*, 62, 57–75.
- Evans, Paul D. and Georgios Karras. (1994) "Are Government Activities Productive? Evidence from a Panel of U.S. States," *Review of Economics and Statistics*, 76, 1–11.
- Florida, Richard. (2004) *The Rise of the Creative Class*. Basic Books: New York.
- Fisher, Ronald. (1997) "The Effects of State and Local Public Services on Economic Development," *New England Economic Review*, March/April, 56–67.
- Frey, Bruno S. (1999) "State Support and Creativity in the Arts: Some New Considerations," *Journal of Cultural Economics*, 23, 71–85.

¹⁶ See Clark and Kahn (1988) who use a hedonic wage approach to measure the benefits of six specific spending areas that could be classified as the "arts" broadly.

- Hart, Kitty C. (1984) "Changing Public Attitudes toward Funding of the Arts," *Annals of the American Academy of Political and Social Science*, 471, 45–56.
- Helms, L. Jay. (1985) "The Effect of State and Local Taxes on Economic Growth: A Time Series-Cross Section Approach," *Review of Economics and Statistics*, 67, 574–582.
- Lee, Sam Y., Richard Florida, and Zoltan Acs. (2004) "Creativity and Entrepreneurship: A Regional Analysis of New Firm Formation," *Regional Studies*, 38, 879–891.
- National Endowment for the Arts. (2007) "How the United States Funds the Arts, Second Edition," Washington, D.C.: National Endowment for the Arts, Office of Research & Analysis. Last accessed in November 2010 at <http://www.nea.gov/pub/how.pdf>.
- Netzer, Dick. (1978) *The Subsidized Muse: Public Support for the Arts in the United States*. Cambridge University Press: Cambridge, UK.
- Powell, Mary C. and Vivien M. Speiser, eds. (2005) *The Arts, Education and Social Change: Little Signs of Hope*. Peter Lang Publishing: New York.
- Seaman, Bruce. (2007) "The Supply Constraint Problem in Economic Impact Analysis: An Arts/Sports Disparity," *Andrew Young School of Policy Studies Research Paper Series Working Paper 07-04*, last accessed November 2010 at <http://aysps.gsu.edu/publications/2007/downloads/Seaman-TheSupplyConstraintProblemInEconomicImpactAnalysis.pdf>
- _____. (2003a) "Economic Impact of the Arts," In Ruth Towse (ed.), *Handbook of Cultural Economics*. MPG Books Ltd: Bodmin, Cornwall, U.K., pp. 224–241.
- _____. (2003b) "Beyond Economic Impact," In Valerie B. Morris (ed.), *The Arts in a New Millennium*. Praeger Publishers: Westport, CT, pp. 77–92.
- Skinner, Sarah J. (2006) "Estimating the Real Growth Effects of Blockbuster Art Exhibits: A Time Series Approach," *Journal of Cultural Economics*, 30, 109–125.
- Stevens, Louise. (2003) "The Arts in the Market Economy," In Valerie B. Morris (ed.), *The Arts in a New Millennium*. Praeger Publishers: Westport, CT, pp. 151–162.
- Stronge, William. (2004) "Economic Impact of Florida's Arts and Cultural Industry." Report prepared for the Florida Cultural Alliance. Last accessed in November 2010 at <http://www.florida-arts.org/documents/economic.impact.2004.pdf>.
- Taylor, Lori L. and Stephen P. Brown. (2006) "The Private Sector Impact of State and Local Government: Has More Become Bad?" *Contemporary Economic Policy*, 24, 548–562
- Thompson, Eric, Mark Berger, Glenn Blomquist, and Steven Allen. (2002) "Valuing the Arts: A Contingent Valuation Approach," *Journal of Cultural Economics*, 26, 87–113.
- Wasylenko, Michael and Therese McGuire. (1985) "Jobs and Taxes: The Effect of Taxes on States' Employment Growth Rates," *National Tax Journal*, 38, 497–514.
- Wooldridge, Jeffrey M. (2001) *Econometric Analysis of Cross Section and Panel Data*, MIT Press: Cambridge, MA.

APPENDIX

TABLE A1. Summary Statistics of Study Variables

	1992		2003	
	Mean	Std. Dev.	Mean	Std. Dev.
Private Employment Growth (%)	2.33	1.39	2.15	1.00
Non-Government Gross State Product Growth (%)	2.61	2.54	4.36	2.48
Private Employment	2,454,637	2,657,526	2,961,237	3,191,959
Non-Government Gross State Product (millions)	107,091	131,371	190,206	227,231
State Arts Spending per Capita	1.24	1.73	1.14	0.89
State Arts Spending/SPI (%)	0.0044	0.0053	0.0036	0.0026
Non-Arts State Spending per Capita	3,922	1,443	4,978	1,368
Non-Arts State Spending/SPI (%)	14.43	4.32	16.03	4.19
Total Federal Transfers to State per Capita	903.48	260.48	1356.87	452.95
Total Federal Transfers to State/SPI (%)	3.40	1.09	4.44	1.59
Budget Surplus per Capita	469.25	337.13	710.86	478.12
Budget Surplus/SPI (%)	1.70	1.10	2.25	1.41
Local Government Spending per Capita	3,041	851	3,689	920
Local Government Spending/SPI (%)	11.18	2.48	11.79	2.41
Population (millions)	5.09	5.62	5.80	6.45
Median Income (thousands)	43.18	4.85	63.65	10.38
Population Density	0.17	0.24	0.19	0.26
Average Wage	11.28	1.26	15.25	1.76
Education (%)	21.18	4.15	26.32	4.90
Energy Price	8.23	1.39	11.51	1.79
Unemployment Rate (%)	6.77	1.59	5.55	1.04
Agricultural Share (%)	2.72	2.64	1.63	1.71
Manufacturing Share (%)	17.30	6.86	12.51	5.76
Age 25-44 (%)	31.89	1.88	27.35	1.41
Age 45-64 (%)	18.96	1.07	24.23	1.65
Age 65 and over (%)	12.62	2.11	12.50	1.83

Note: Government expenditure variables and gross state product are adjusted for inflation to the 2003 price level.

TABLE A2. Data Descriptions and Source Notes

Variables	Definition
Private Employment Growth (%)	Growth rate private sector state employment from t to $t+1$. (1)
Nongovernment growth in state gross domestic product (%)	Growth rate of nongovernment state gross domestic product from t to $t+1$. (2)
Private Employment	Total private sector employment in a state. (3)
Non-Government Gross State Product	Total nongovernment state gross domestic product. (4)
State Arts Spending per Capita	Total state government spending for the arts divided by state population. (5)
State Arts Spending/SPI (%)	Total state government spending for the arts divided by state personal income. (5)
Non-Arts Spending per Capita	Total government expenditures - state arts spending divided by state population. (5 and 6)
Non-Arts Spending/SPI (%)	Total government expenditures - state arts spending divided by state personal income. (5 and 6)
Total Federal Transfers to State...	Total federal transfers to state, divided by either population or state personal income. (6)
Budget Surplus...	Total government revenues - total government spending, divided by pop or SPI. (6)
Local Government Spending...	Total local government expenditures within a state, divided by pop or SPI. (6)
Population (millions)	State population. (2)
Median Income (thousands)	State median income. (7)
Population Density	Population/square miles in a state. (8)
Average Wage	Average hourly wage for manufacturing workers. (3)
Education (%)	Percent of population over age 25 that hold at least a bachelor's degree. (8)
Energy Price	Estimate of energy costs for all forms of energy, measured per million Btu. (9)
Unemployment Rate (%)	State unemployment rate. (3)
Agricultural Share (%)	State agricultural production as a share of total gross state product. (2)
Manufacturing Share (%)	State manufacturing production as a share of total gross state product. (2)
Age 25-44 (%)	Share of state population between the ages of 25-44. (8)
Age 45-64 (%)	Share of state population between the ages of 45-64. (8)
Age 65 and over (%)	Share of state population over the age of 64. (8)

Notes: Government expenditures and state gross domestic product are in terms of 2003 prices.

Source notes:

1. Authors' calculations based on data from Employment and Wages, Bureau of Labor Statistics, various years.
2. Authors' calculations based on data from State Personal Income and Employment, Bureau of Economic Analysis, various years.
3. Employment and Wages, Bureau of Labor Statistics, various years.
4. Gross Domestic Product by State, Bureau of Economic Analysis, various years.
5. Authors' calculations based on data from Legislative Appropriations Annual Survey, National Assembly of State Arts Agencies, various years, and State Personal Income and Employment, Bureau of Economic Analysis, various years.
6. Authors' calculations based on data from State Government Finances, U.S. Census Bureau, various years, and State Personal Income and Employment, Bureau of Economic Analysis, various years.
7. Statistical Abstract of the United States, U.S. Census Bureau, various years.
8. Authors' calculations based on data from Statistical Abstract of the United States, U.S. Census Bureau, various years.
9. Energy Price Estimates by Source, U.S. Department of Energy, various years.