

The Arts and Culture Sector's Contributions to Economic Recovery and Resiliency in the United States: 2001-2021 Update

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Introduction

To conduct the analyses here, I employ data from the Arts and Cultural Production Satellite (ACPSA), compiled through a partnership between the U.S. Bureau of Economic Analysis (BEA) and the National Endowment for the Arts. My analysis uses ACPSA data from 2001-2021, the most recent year available, for all 50 states plus the District of Columbia. I select three primary metrics from this data set: (i) the value-added (VA) in nominal dollars (a measure comparable to and compatible with gross state product), (ii) the number of full-time equivalent employees supported and (iii) total compensation paid in nominal U.S. dollars. The ACPSA reports these indicators for the overall arts economy and also breaks it down into two main categories: core production (output primarily contributing to arts and culture) and supporting production (output that supports the core category through dissemination, publication and other supportive functions) (Kern, et al., 2014). Cologer and Ortiz (2017) give an example to help distinguish between core and supporting: for a live music concert, the composition and performance belong to the core, while the recording and dissemination, selling of tickets, promotion of the event, and construction of the facility belong to supporting. Within the core industries, there are 16 subsectors or subindustries identified in the ACPSA; within the supporting industries, there are 18 subsectors or subindustries tracked. These subsectors are listed and described briefly in Table 1, along with the national average values (across all years) for the VA, employment and compensation.

To this data I join data on population (from the BEA's state personal income files), total employment (from the U.S. Bureau of Labor Statistics), and median household income (from the U.S. Census's Current Population Survey).

Data

Table 1 offers an overview of the 2021 data from the ACPSA across its various subcategories and for its different measures (e.g., VA, jobs, compensation). The top section of Table 1 indicates the top level aggregate macroeconomic indicators at the state level for 2021 for the 50 states and D.C. First, per capita gross state product (GSP) and arts value-added indicate just how small the arts and culture economy is relative to the overall state economy. Their standard deviations reflect that the arts VA varies more widely among states than GSP does. Next, employment figures are shown as the aggregate per capita jobs overall and as the subset of jobs related to arts and culture. Again, arts jobs constitute a small portion of all jobs. Finally, median household income is compared to average compensation paid per job in arts and culture. Here, on a per-job

basis, the total compensation paid in arts in culture is roughly in line with typical median incomes on average. It is also worth noting that, except for the median income variable, all of the variables in Table 1 exhibit much greater variation among the different states than over time within the same state.¹

Table 1: ACPSA Data Overview and Descriptive Statistics, 2021

Variable	Mean	Std. Dev.	Minimum	Maximum
Gross state product per capita	\$68,727.5	25,799.6	\$43,155.7	\$229,341.8
Arts & culture value-added per capita	\$2,573.5	3,001.7	770.7	20,551.5
Employment per capita	0.593	0.040	0.512	0.676
Arts & culture jobs per 1,000 capita	10.5	10.2	7.7	82.0
Median income	\$71,538.1	11,825.5	\$46,637.0	\$97,332.0
Arts & culture compensation per arts job	\$82,936.9	27,057.7	\$54,855.7	\$180,909.2

Variable	Mean VA per Capita	Mean Jobs per 1,000 Capita	Mean Compensation (\$1,000s) per Capita
Core Production	\$538.93	3.28	\$67.16
Indep. artists, writers, performers	58.54	0.12	122.26
Advertising	132.45	0.49	70.97
Agents/Managers	7.83	0.02	148.86
Architecture	72.75	0.44	113.00
Computer systems design	12.35	0.07	140.74
Education	28.27	0.37	54.89
Fine arts education	8.74	0.46	20.78
Graphic design	24.87	0.14	103.91
Industrial design	5.92	0.05	69.51
Interior design	34.91	0.11	76.18
Landscape architecture	7.76	0.08	76.20
Museums	29.27	0.41	40.32
Other design	2.69	0.02	87.95
Performing arts companies	31.52	0.26	50.19
Photography	23.98	0.14	84.45
Promoters	57.07	0.26	56.58

¹ The only other exceptions are for construction VA and promoters VA. For most variables, variation among states is very much greater than the variation within states.

Variable	Mean VA per Capita	Mean Jobs per 1,000 Capita	Mean Compensation (\$1,000s) per Capita
Supporting Production	1964.77	11.21	87.31
Broadcasting	418.65	1.22	107.33
Construction	47.75	0.31	111.77
Government	517.10	4.84	80.55
Grantmaking	4.63	0.04	66.88
Music instrument manuf.	2.09	0.03	62.46
Jewelry & silverware manuf.	10.90	0.10	62.09
Motion pictures	88.96	0.64	58.66
Other goods manuf.	11.58	0.08	79.48
Other information services	235.38	0.46	129.96
Other support services	0.67	0.01	74.20
Printed goods manuf.	16.66	0.17	61.59
Publishing	312.37	0.89	156.95
Rental & leasing	10.56	0.04	68.41
Retail	143.32	1.86	37.93
Sound recording	27.68	0.04	147.83
Unions	8.81	0.10	53.89
Woodwork/Metalwork manuf.	8.46	0.10	59.25
Wholesale & transportation	99.19	0.55	99.16
All Other Industries	69.78	0.45	76.97

Trends

First, I juxtapose the trends in the general economy against trends in the arts economy. All of the values in Figure 1 are indexed to the first year that all data is available, 2001, so data is shown as growth over 2001 values. The graph shows this trend for two primary metrics: GSP and arts VA. It also shows trends for median income and compensation per job, and presents the arts VA trends by core and supporting. Figure 1 reflects the arts sector's response to two major events: the Great Recession of 2009 and the COVID-19 pandemic in 2020.

Figure 1: Trends in the Overall Economy, Arts and Culture Economy, Indexed to 2001

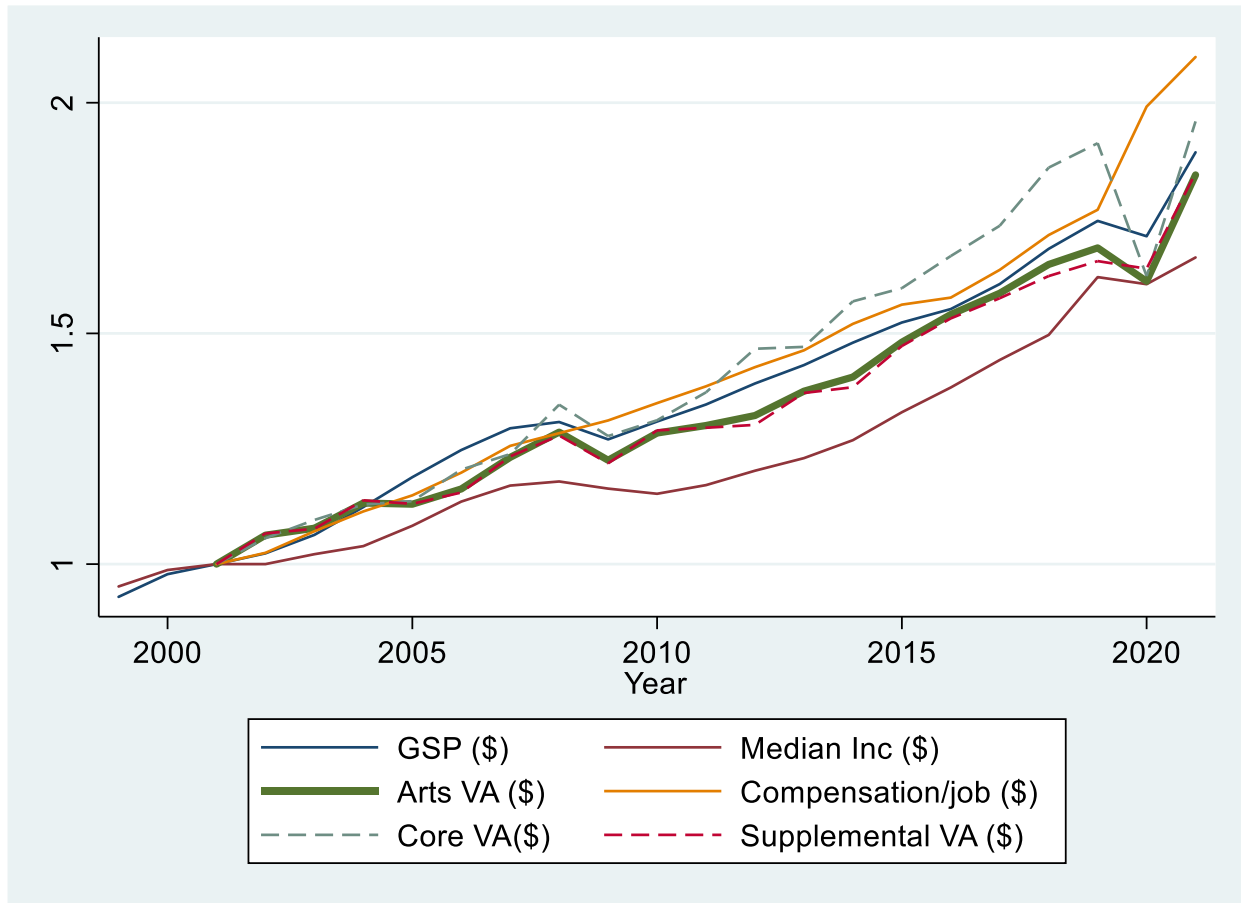


Figure 1 reveals some important trends. GSP has been strongly rising, reaching 188% of its 2001 level by 2021. This growth has been fairly steady except for the Great Recession period (2008-2009) and the COVID-19 pandemic (2019-2020). The strong growth in the most recent year appears sufficient to have recovered all of the GSP losses during the pandemic. For the most part, the arts VA trend follows closely alongside the overall GSP trajectory. Its decline during and its recovery after the pandemic both appear to be somewhat greater than the overall economy's, reflecting the sector's special sensitivity to that shock.

Figure 1 also shows the trends for the two main categories of the arts and culture economy. The core subsectors appear to have grown even more robustly than the overall arts economy and the general economy but, unsurprisingly, they suffered more severely during the pandemic period, as much of the core category covers performance and in-person arts activities. By 2021, it can be seen that the core arts economy has grown faster than the economy overall. The supporting category trend tracks very closely with the arts VA curve, which is expected given its large share of the overall arts economy. In terms of income, Figure 1 shows how median incomes have grown—somewhat more steadily than the overall economy, but at a slightly slower rate. Compensation per job in the arts and culture sector, however, has grown more steadily (and

without setbacks during the Great Recession or the pandemic) and substantially faster than overall household incomes.

It is worth emphasizing that the *number* of jobs supported by the arts and culture sector has not experienced a similar upward trajectory. From 2001 to 2021, the number of arts and culture jobs has decreased by 16%. Notably, this means that the robust growth in compensation per job visible in Figure 1 is more of a story of increasing compensation (the numerator) than a story of decreasing jobs (the denominator). Compensation itself in the arts and culture sector grew by 86% from 2001 to 2021.

Another way to view the arts and culture sector in the United States is to decompose it into different constituent parts. Table 2 shows how the relative sizes of these subindustries changed over the past 20 years. The top half of Table 2 lists the core sectors, while the bottom half lists the supporting sectors. Three pairs of columns show comparisons of the breakdown of subindustry size for 2001 and for 2021. The first pair compares the per capita value-added amounts (in nominal dollars). The second pair compares the "market share," or the percent of the total value-added from the ACPSA that each subindustry contributes. The rightmost pair shows similar market shares for each subindustry, but separates the share of the core industries (top half) from the supporting industries (bottom half).

The main lessons from Table 2 inform us about how these different subindustries vary widely in size and, to a lesser extent, over time. By subindustry, Table 2 shows the average per capita VA in 2001 and 2021 and also how much of the total arts VA and of the core or supporting sectors each subindustry accounts for. Overall, the largest subindustries are found among the supporting category, especially government, broadcasting and publishing. Among the core subindustries, we can see that the largest are the independent artists, writers and performers as well as advertising. Architecture, performing arts companies and photography related services also accounted for large shares in 2001, but their shares declined substantially by 2021. Instead, other subindustries (e.g., independent artists, writers, and performers; interior design; promoters) grew in their share. In the supporting category, broadcasting and publishing made large relative gains, while motion pictures, construction and sound recording experienced relative declines. But the most profound statistics in Table 2 clearly revolve around two supporting subindustries: the dramatic rise in other information services (e.g., web publishing and streaming²)—from 1.0% of the arts economy in 2001 to 15.1% by 2021—and the concurrent decline in value-added from government supporting production—from 19.6% to 11.6%.

² Other information services also includes news syndicates (Iyengar and Nichols, 2013) and private libraries and archives (National Endowment for the Arts, 2020).

Table 2: VA and Market Share by Subindustry, 2001 and 2021

Subindustry	2001 \$ per Capita	2021 \$ per Capita	2001 Aggregate Share	2021 Aggregate Share	2001 Core/ Supporting Share	2021 Core/ Supporting Share
Core						
Indep. artists, writers, performers	\$52.24	\$120.82	3.1%	3.9%	15.9%	18.7%
Advertising	67.69	135.07	4.1	4.4	20.5	20.9
Agents/Managers	6.08	19.73	0.4	0.6	1.8	3.1
Architecture	46.11	72.07	2.8	2.4	14.0	11.2
Computer systems design	3.81	16.29	0.2	0.5	1.2	2.5
Education	10.39	24.42	0.6	0.8	3.2	3.8
Fine arts education	4.40	9.85	0.3	0.3	1.3	1.5
Graphic design	23.68	32.34	1.4	1.1	7.2	5.0
Industrial design	4.75	8.39	0.3	0.3	1.4	1.3
Interior design	14.76	42.75	0.9	1.4	4.5	6.6
Landscape architecture	7.34	10.21	0.4	0.3	2.2	1.6
Museums	10.82	28.43	0.7	0.9	3.3	4.4
Other design	1.47	4.08	0.1	0.1	0.4	0.6
Performing arts cos.	31.45	40.02	1.9	1.3	9.5	6.2
Photography	29.82	29.84	1.8	1.0	9.0	4.6
Promoters	14.75	51.50	0.9	1.7	4.5	8.0
Supporting						
Broadcasting	\$218.54	\$475.84	13.2%	15.5%	17.2%	20.3%
Construction	48.42	41.06	2.9	1.3	3.8	1.8
Government	326.00	356.13	19.6	11.6	25.7	15.2
Grantmaking	1.47	3.38	0.1	0.1	0.1	0.1
Music instrument manuf.	2.29	2.97	0.1	0.1	0.2	0.1
Jewelry & silver. manuf.	11.21	8.23	0.7	0.3	0.9	0.4
Motion pictures	164.24	196.17	9.9	6.4	12.9	8.4
Other goods manuf.	8.70	9.99	0.5	0.3	0.7	0.4
Other info. services	16.64	463.50	1.0	15.1	1.3	19.8
Other support services	0.88	0.75	0.1	0.0	0.1	0.0
Printed goods manuf.	24.55	17.23	1.5	0.6	1.9	0.7
Publishing	173.71	383.67	10.5	12.5	13.7	16.4
Rental & leasing	23.98	15.14	1.4	0.5	1.9	0.6
Retail	104.67	171.60	6.3	5.6	8.2	7.3
Sound recording	62.10	50.06	3.7	1.6	4.9	2.1
Unions	2.73	4.66	0.2	0.2	0.2	0.2
Wood/Metalwork, manuf.	4.50	8.30	0.3	0.3	0.4	0.4
Wholesale & transport.	74.64	136.65	4.5	4.5	5.9	5.8

Analysis of Drivers of Economic Growth

A natural question arises as to whether the general (statewide) economy drives the growth of the arts economy or vice versa (or neither, or both). This section takes up this question by relying on over 20 years of ACPSA data across the 50 states and D.C. The idea is to leverage the variation in these macroeconomic indicators—over time and among states—to identify the extent to which past strength in the arts economy has supported more growth in the arts economy, in the overall economy, both, or neither. At the same time, it tests whether growth in the overall economy in prior years has had a positive or negative effect on overall economic growth, growth in the arts and culture sector, both, or neither.

To test these alternative hypotheses, I estimate panel vector autoregression (pVAR) models using the ACPSA data. To start, I estimate pVAR regression models for just two dependent variables, using GSP and arts VA as the macroeconomic outcome measures of primary interest. In all models, these variables are logged (and not in per capita terms).³ The pVAR model is a panel data version of the time-series vector autoregressive models that treat each value in a given year as a linear function of its past values and the past values of other variables. For each of the models estimated here, several diagnostic checks are performed in order to fit the best model (see Abrigo and Love, 2016). All models remove cross-sectional means from each variable and use first-differenced estimates in order to purge panel-specific fixed effects. In determining which lag structure to use for estimation, the model with the smallest diagnostic statistics (MBIC, MAIC and MQIC) is preferred. To avoid possible misspecified models, the Hansen's J statistic is also checked to test the overidentifying restriction in selecting the preferred lag. The selected models use only a one-year lag in the specification, with three years of lags as instruments. Checks for the stability of each model must show that moduli of the companion matrix are all less than unity.

Table 3 summarizes the results of three separate models. The first model uses just the two macroeconomic indicators of GSP and arts VA. The second model uses GSP and splits the arts VA measure into core VA and supporting VA. The third model uses GSP with arts VA and government VA (where government VA value has been differenced out of the arts VA measure). The columns list the dependent variables for each model. Each cell indicates the sign and significance of the effect of the variable in each row on those dependent variables. (Cells with darker borders indicate the effect of the dependent variable's own lag.) Thus, in the first model, the prior year's GSP has a positive effect on current GSP and a positive (but insignificant) effect on current arts VA. And the prior year's arts VA has a positive effect on both current GSP and arts

³ In addition, the arts VA for each state-year is subtracted from its corresponding GSP measure in order to purge the overall-economy measure of the size of the arts economy in that state-year.

VA. The rightmost column indicates the Hansen's J statistic for the test of overidentifying restrictions for the models.

Table 3: Panel Vector Autoregression Results

Dependent Variable	GSP	Arts VA	Core VA	Supporting VA	Government VA	Model J Stat (χ^2)
GSP	***	+				18.1
Arts VA	**	****				p= 0.12
GSP	****		**	+		23.0
Core VA	+		**	**		p= 0.19
Supporting VA	+		+	****		
GSP	****	+			****	25.7
Arts VA	****	****			0	p= 0.11
Government VA	+	0			****	

Note: *, **, *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively.

To read Table 3, pick one of three models, starting with either the model with just GSP and arts VA (top, white rows); the model that has GSP, core VA and supporting VA (middle, gray rows); or the model with GSP, arts VA and government VA. Then look under each column to see what variable factors cause changes in that metric. For the bottom model, for example, note that GSP is positively (and statistically significantly) influenced by GSP and arts VA; arts VA is positively (and significantly) impacted by arts VA, and government VA is positively impacted by GSP and government VA. The cells with darker outlines indicate the "own effect," or the metric's impact on itself, and these should be read as, How does growth in that macroeconomic indicator this year affect its own growth in the following year? For this bottom model, we can see that each of the three indicators all positively affect themselves: growth in that part of the economy tends to be followed by more growth in that part of the economy. More interesting is to note how growth in the general state economy also helps drive growth in the government VA portion of the arts economy, and that growth in the arts economy leads to more growth in the general state economy. Also notable is that growth in the general economy is not driving growth in the (nongovernmental) arts economy, and growth in government VA is not helpful to the general economy or to the rest of the arts economy.

Overall, the results of the pVAR offer consistent evidence that the arts and culture economy positively impacts the overall state economy. The arts VA, as a whole, positively impacts the GSP (but this effect is not statistically significant when broken down into core and supporting subindustries). The arts VA elasticity in the first model is estimated at 0.08, suggesting that a 10% growth in arts VA would lead to a 0.8% increase in the total (non-arts) GSP in the following year. Also notable is the lack of statistical significance in the effect of GSP on arts VA. General

economic growth may have a positive effect on core VA and has a strong and positive effect on government VA (elasticity of 0.13). But economic growth seems not to drive growth in supporting VA or arts VA in aggregate. The strongest GSP effect, as expected, is on itself (own elasticity of approximately 0.29).

Across all models and all dependent variables, past growth leads to more growth. Core VA growth promotes more supporting VA growth, but not vice versa. Government VA growth does not cause growth in overall GSP or arts VA. Thus, while GSP growth does not consistently boost the arts VA, creative industries as arts VA drive aggregate GSP growth.

Conclusion

The arts and culture economy in the United States shows a great deal of dynamics and variation. Over time, its growth has been strong and generally positive. It suffered during the COVID-19 pandemic, but quickly recovered by 2021. It exhibits substantial variation from state to state, consistent with "superstar" economies where arts industries concentrate spatially in a few regions. Perhaps most noteworthy is how much the arts and culture economy has evolved over the past 21 years. The market shares for many of its subsectors have dramatically changed over those two decades. Core subsectors have grown faster (96%) than supporting subsectors (58%) over this time. But within this aggregate growth, bigger changes can be seen for growing subsectors like independent artists, writers and performers (growing by 131%) and for more stagnant performing arts companies (growing by 27%). The most dramatic change has been the rise of other information services (growing from 1% to over 15% of the overall arts economy over the two decades). Concurrently, prominence has waned for other sectors, such as government (falling from 19.6% to 11.6%) and motion pictures (falling from 9.9% to 6.4%). These changes occur contemporaneously with major technological changes in the sector (such as digitization and streaming) and ever-louder public discourse about the rise of the "creative class" and the economic role of the cultural and creative industries.

Despite all of this change, the data show more consistency than chaos. After testing hypotheses about the arts economy driving the overall (state level) economy, the results presented offer some initial indications of a positive answer for the arts. In the most streamlined panel model for 21 years of state level arts and culture value-added, growth in the arts sector exhibits a positive, causal impact on growth in the overall (non-arts) gross state product. This modest effect size—an elasticity of 0.08—is statistically significantly different from zero. The estimates suggest that doubling a state's arts economy would lead to an 8% growth in the rest of the state's economy in the following year. Although growth in GSP and arts VA each positively depend on prior year's growth in GSP and arts VA, respectively, growth in GSP does not appear to lead to significant

growth in the arts economy. Decomposing the arts economy into core and supporting production adds some nuance to these findings. Core production appears to drive supporting production, but not vice versa, while overall economic growth in GSP promotes more core VA growth. Notably, growth in the government subindustry of the arts economy follows overall GSP growth but does not itself boost overall GSP or arts VA growth.

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