The Economic Impacts of the Dallas-Ft. Worth Creative Economy

Michael Seman, Ph.D.
Michael C. Carroll, Ph.D.
Economics Research Group
University of North Texas

July 2016

Table of Contents

Executive Summary

The Dallas Ft. Worth region's creative economy is an important component of the region's overall economy. It is the leading creative economy in the state of Texas and also among the largest nationwide. The Dallas-Ft. Worth creative economy offers substantial economic impacts and also outperformed the growth rate of the nation's creative economy in the post-recessionary period of 2010 to 2015. Beyond economic impacts, the region's creative economy has driven the development of cultural districts and may be a contributing factor helping to retain and attract an educated, highly skilled workforce and creating a "buzz" that plays a role in the decision-making process of firms looking to relocate to the region.

Highlights

- The Dallas-Ft. Worth creative industries contribute $34 billion to the broader regional economy annually.
- The Dallas-Ft. Worth creative economy supports more than 205,000 jobs in the region annually paying over $11.5 billion in salaries and wages.
- The Dallas-Ft. Worth creative economy is the largest in the state of Texas and among the largest nationwide.
- The Dallas-Ft. Worth creative economy generates $2.7 billion annually in Federal taxes and $1.2 billion annually in State and local taxes.
- The creative industries are a significant driver of innovation and entrepreneurship.
- Employment in the creative industries of Dallas-Ft. Worth is growing faster than the national average.

Introduction

The Dallas-Ft. Worth metropolitan region's economy is diverse, spanning industries such as energy, high-tech, health care, manufacturing, and logistics among many others. This economic diversity played a major role in the region emerging from the nationwide economic downturn largely unscathed and propelling it in current economic prosperity. One of the lesser-recognized forces driving the Dallas-Ft. Worth economy is creativity.

The region's creative economy is comprised of everyone who works for creative firms and enterprises – e.g., advertising agencies, museums, music studios – whether or not they are directly engaged in the process of developing creative content or products, as well as those who perform creative work on a contractual basis for firms in other industries. For example, the region's creative economy includes a graphic designer employed full-time at the large advertising firm The Richards Group and a principal dancer for the Texas Ballet Theater. Further, it also includes a videographer who is working freelance on the weekend, completing a corporate training video for Exxon Mobil. Prior work by Americans for the Arts, a national research and advocacy group, the New England Foundation for the Arts, and data from the Bureau of Labor Statistics, the U.S. Census, and the Texas Workforce Commission were used to help model which industries are creative in Dallas-Ft. Worth and who is performing creative work regardless of industry (Table 1).

Thousands of firms and people engaging in creative work generate revenues and employment opportunities in Dallas-Ft. Worth, but this activity also does more than help drive the region's economy – it helps brand the major cities within it as creative. A city buzzing with creativity during the day that offers plenty of entertainment options at night attracts not only those who work in the creative economy, but an educated, highly-skilled labor pool working in a broad cross-section of industries who want to embrace a creative lifestyle when not on the clock.[1] The attraction of this growing workforce, plus retention of the existing one, drives a region's economy by creating new firms, fueling the expansion of existing firms, or attracting firms from outside the region.[2] The wealth of internationally-recognized art museums and performance venues, an unending string of critically acclaimed bands and music festivals, the plethora of designers, photographers, and filmmakers creating cutting-edge promotional work for national brands – these are just some of the things continuing to elevate the perception of Dallas-Ft. Worth as a hub of creativity, attracting both employees and firms.

---

[1] Currid, E. (2009). Bohemia as Subculture; "Bohemia" as Industry: Art, Culture, and Economic Development. *Journal of Planning Literature*, 23 (4), 368–382.

[2] Florida, R. (2002). 2002. *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community and Everyday Life*. New York, NY: Basic Books.

Table 1. Direct Employment of Dallas-Ft. Worth's Creative Economy, 2015

Sector	Employment	Sector	Employment
Museums and Education	**3,406**	**Film, Radio, and TV**	**14,640**
Museums		Motion Pictures	
Fine Arts Schools		Television	
		Radio	
Performing and Visual Arts	**37,645**	**Design and Publishing**	**42,948**
Music		Architecture	
Theater		Design	
Dance		Publishing	
Opera		Advertising	
Visual Arts			
Photographers			
Crafts			
Services and Facilities		**Total Employment**	**98,639**

Source: Americans for the Arts; New England Foundation for the Arts; Texas Workforce Commission; U.S. Census

A thriving creative economy can also help redevelop a region's urban landscape. The arts have catalyzed urban redevelopment in a number of ways. Artists living and working in marginalized neighborhoods often help those neighborhoods transition into more desirable, vibrant sections of a city.[3] [4] When integrated into their surrounding landscapes and artistic communities, museums and performing arts centers can drive redevelopment in addition to attracting tourists.[5] [6] Additionally, many cities are also increasingly engaging in "creative placemaking" by leveraging local arts and culture to turn underutilized spaces into places embraced by surrounding communities.[7]

The urban landscape of Dallas-Ft. Worth has been similarly changed by individuals and forces in its creative economy. For example, several waves of reinvestment in the Deep Ellum section of Dallas wouldn't have happened if artists and musicians hadn't lived and worked in the area when it was a collection of blighted warehouses and lofts in the 1980s. At the same time, the Dallas Arts District has completely transformed a section of the city's downtown while continuing to encourage new residential and recreational projects nearby. The story is similar in Ft. Worth with the city's museums acting

[3] Stern, M., and Seifert, S. (2010). Cultural clusters: The implications of cultural assets agglomeration for neighborhood revitalization. *Journal of Planning Education and Research*, 29(3), 262–279.

[4] Markusen, A., and Johnson, A. (2006). *Artists' Centers: Evolution and Impact on Careers, Neighborhoods, and Economies*. Minneapolis: Project on Regional and Industrial Economics, University of Minnesota. Minneapolis, MN.

[5] Grodach, C. (2010). Beyond Bilbao: Rethinking flagship cultural development and planning in three California cities." *Journal of Planning Education and Research*, 29(3), 353–366.

[6] Strom, E. (2002). Converting pork into porcelain: Cultural institutions and downtown development. *Urban Affairs Review*, 38 (1), 3–21.

[7] Markusen, A., and Gadwa, A. (2010). *Creative Placemaking*. National Endowment for the Arts. Washington, D.C.

as an anchor for the recent Cultural District transformation. On a national scale, one of the first widely popularized movements in creative placemaking is also located in Dallas, with musician and IT professional Jason Roberts' Better Block organization staging their first public placemaking project in Dallas' Oak Cliff neighborhood in 2010.

A creative economy also spurs innovation within the industries and firms that comprise it as well as firms in other industries such as manufacturing and high-tech.[8] [9] The new economic landscape is often driven by small firms and entrepreneurs who harness creativity and technology to develop innovative solutions to existing problems or disrupt entire industries. A firm in today's creative economy may be a mix of artists, writers, designers, coders, developers, and more – a fact equally true of a firm in the high-tech sector. It is this collaborative environment incorporating the arts as well as technology that drives innovation.[10] [11]

Quantifying the economic impact of the creative economy in Dallas-Ft. Worth is important to understand its value to the region's overall economy. Taking a closer look at the different sectors of the region's creative economy and the differences in their individual impacts highlights how a variable such as technology can be both a positive influence and also produce new challenges for established industries. Additionally, considering the sectors individually over time helps to understand their growth or decline and frame their potential performance in the future. This is helpful when considering policy decisions from educational spending to nightlife zoning that may affect the growth of a creative economy's individual sectors.

Creative Industries as an Economic Engine

The economic impact of Dallas-Ft. Worth's creative economy is substantial. In 2015, creative enterprises and individuals were responsible for $34 billion of economic activity resulting in over 205,000 jobs and $1.2 billion in state and local taxes (Table 2).

[8] Chapain, C., Cooke, P., De Propris, L., MacNeill, S., and Mateos-Garcia, J. (2010). *Creative Clusters and Innovation: Putting Creativity on the Map*. NESTA. London, England.

[9] Gwee, J. (2009). Innovation and the creative industries cluster: A case study of Singapore's creative industries. *Innovation: Management, Policy & Practice*, 11, 240–252.

[10] Florida, R. (2012, August 31). The joys of urban tech. *The Wall Street Journal*. Accessed from: http://www.wsj.com/articles/SB10000872396390444914904577619441778073340

[11] Sydell, L. (2015, April 7). Artists in residence give high-tech projects a human touch. National Public Radio. Accessed from: http://www.npr.org/sections/alltechconsidered/2015/04/06/397823309/artists-in-residence-give-high-tech-projects-a-human-touch

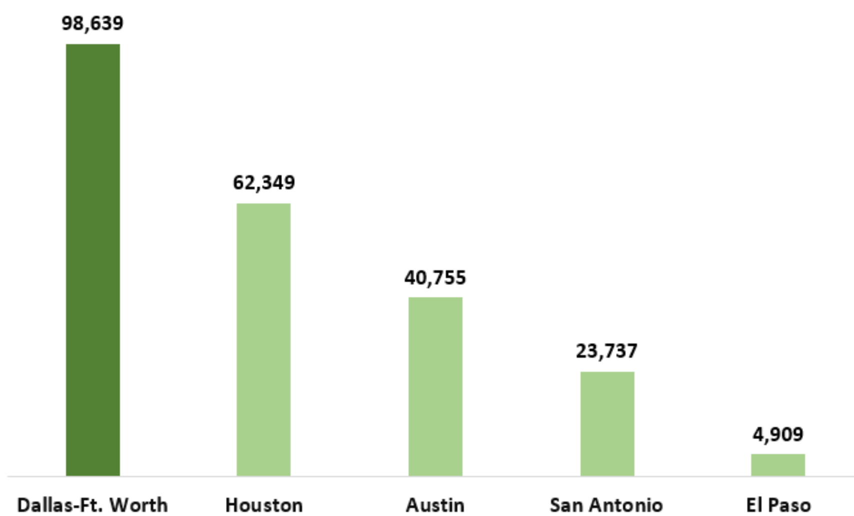
Table 2. Economic Impacts of the Dallas-Ft. Worth Region's Creative Economy

Direct Economic Impact	$17,557,390,110
Total Economic Impact – Direct, Indirect, and Induced	$34,067,039,756
Labor Income (salaries & wages)	$11,591,018,102
State and Local Fiscal Impact	$1,202,294,001
Federal Fiscal Impact	$2,711,991,099
Direct Employment (jobs)	98,639
Total Employment (jobs) – Direct, Indirect, and Induced	205,951

Source: IMPLAN

Examining how the Dallas-Ft. Worth region's creative economy compares to other metropolitan regions inside Texas and nationally helps to place its size in perspective (For a detailed methodology concerning how all of the creative economies in this study were analyzed, please see Appendix A). When comparing the overall size of Dallas-Ft. Worth's creative economy against other regions in Texas, it emerges the clear leader. The region's creative economy is substantially larger than Houston's, the next closest in size, and it eclipses the Austin region's – one commonly marketed and perceived of as the largest in the state (Illustration 1).

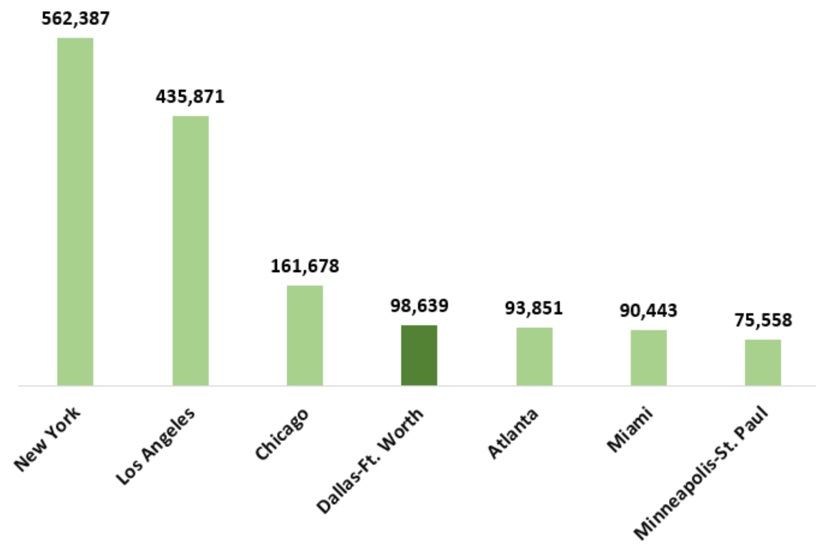
Illustration 1. Creative Economy Employment in Selected Texas Metropolitan Regions, 2015



Source: Bureau of Labor Statistics; U.S. Census

Comparing the creative economy of Dallas-Ft. Worth to a selection of other metropolitan regions from across the country offers additional perspective. The New York, Los Angeles, and Chicago metropolitan regions are perennial leaders in creative economy activity and are predictably larger; however, other regions with strong overall economies like Atlanta, Minneapolis-St. Paul, and Miami fall behind Dallas-Ft. Worth in terms of their creative economy employment (Illustration 2)

Illustration 2. Creative Economy Employment in Selected Metropolitan Regions, 2015



Source: Bureau of Labor Statistics; U.S. Census

Taking the comparison beyond regions, the estimated 98,639 who are directly employed in Dallas-Ft. Worth's creative economy is comparable to the number directly employed in the *entire* creative economy of Colorado.[12] Granted, a portion of a region's creative economy may be explained as a function of the size of the overall population, but internal dynamics and the development of creative networks within a region are more important factors in driving the growth of regional creative economies. For example, according to the U.S. Census, the Dallas-Ft. Worth metropolitan region's population is only 6.3% larger than the Houston metropolitan region's, yet total employment in its creative economy is 58.2% higher than in Houston's. Conversely, the New York City region's population is 51.3% larger than the Los Angeles region's while employment in its creative economy is only 29% higher. In terms of economic impacts, the $34 billion in total economic impact that the Dallas-Ft. Worth creative economy provides far outstrips the total impacts provided by creative economies in other metropolitan areas such as Houston and Austin plus entire states like Ohio.[13] [14] [15]

The strength of Dallas-Ft. Worth's creative economy is also illustrated through its direct employment growth. Using a post-recession economic baseline of 2010 as a starting point, employment in the creative industries grew by 9.1%

[12] *The State of Colorado's Creative Economy*. (2008). Alliance for Creative Advantage. Regional Technology Strategies. Mt. Auburn Associates, Inc. Carrboro, NC.

[13] *The Creative Economy of Houston*. (2012). Houston Arts Alliance, University of Houston. Greater Houston Partnership. Houston, TX.

[14] *The Economic Impact of the Creative Sector in Austin: 2012 Update*. (2012). TXP, Inc. Austin, TX.

[15] *The Economic Impact of Ohio's Creative Industries: 2015*. (2015). Center for Regional Development. Bowling Green State University. Bowling Green, OH.

between 2010 and 2015. Comparatively, growth in the nation's creative economy employment was only 6.0% (Table 3).

Table 3. Comparative Change in Creative Economy Employment, 2010 – 2015

Region	2010 Employment	2015 Employment	% Change
Dallas – Ft. Worth Region	90,451	98,639	9.1%
United States	4,301,667	4,560,808	6.0%

Source: Texas Workforce Commission; Bureau of Labor Statistics, U.S. Census

A better understanding of the comparative strength of impacts is illuminated when broken down by sector. Additionally, examination of employment growth and decline in various sub-categories of the region's creative economy allows for more insight into both its dynamics and that of the region's broader economy.

Design and Publishing

"Design and Publishing" is the largest sector of Dallas-Ft. Worth's creative economy with over $17 billion in total economic impacts rippling through the region resulting in 94,430 jobs earning more than $6.1 billion in salaries, wages, and benefits (Table 4).

Table 4. Economic Impacts of Design and Publishing, 2015

Direct Employment	42,948
Total Employment (Direct, Indirect, and Induced)	94,430
Labor Income	$6,117,940,492
Direct Economic Impact	$9,014,047,532
Total Economic Impact (Direct, Indirect, and Induced)	$17,081,033,529

Source: IMPLAN

Although "Design and Publishing" is the largest sector in the region's creative economy, its growth rate is last amongst all categories. This is not necessarily unexpected, but more a sign of the sea change in the broader economy being driven by digital technology. The anemic 1.2% rate of growth in the "Design and Publishing" sector is largely due to declining employment in the publication and consumption of printed media – a global phenomenon. During the five years examined, book publishers in DFW shed 29.9% of their workforce, newspaper publishers lost 26.2%, and periodical publishers lost 20% for a combined loss of 2,037 workers. Stores selling books, magazines, and music also lost employment with a 32.2% drop in employment representing a loss of 1,024 employees. At the same time, employment by online publishers in the region grew 90.4% representing an employment gain of just over 700 Dallas-Ft. Worth jobs (Table 5).

Table 5. Change in Design and Publishing Employment by Subsector, 2010 – 2015

Sector	2010 Employment	2015 Employment	Emp Chg	% Chg
Design and Publishing	**42,454**	**42,948**	**494**	**1.2%**
Architectural Services	5,582	6,902	1,320	23.6%
Specialized Design Services	7,900	9,048	1,148	14.5%
Sign Manufacturing	1,301	1,978	633	48.7%
Newspaper Publishers	4,863	3,590	-1,273	-26.2%
Periodical Publishers	1,423	1,138	-285	-20.0%
Book Publishers	1,602	1,123	-479	-29.9%
Book, Periodical, and Music Stores	3,182	2,158	-1,024	-32.2%
Internet Publishing and Broadcasting and Web Search Portals	782	1,489	707	90.4%
Advertising, Public Relations, and Related Services	15,819	15,566	-253	-1.6%

Source: Texas Workforce Commission; U.S. Census

The shifting focus from physical to digital is also impacting those firms and individuals working in the advertising and marketing industries. Not only are there fewer physical outlets for advertising and marketing campaigns, the integration of advertising and marketing into digital media is still in its infancy. The result of this transition is a downsizing that began during the recession and continues to this day.[16] The subsector, "Advertising, Public Relations, and Related Services" reflects this loss in employment with 253 people having lost their jobs from 2010 to 2015.

Film, Radio, and TV

"Film, Radio, and TV" is the next largest sector in terms of total economic impacts generating $9.4 billion for Dallas-Ft. Worth and facilitating more than 42,000 jobs paying $2.7 billion in salaries, wages, and benefits (Table 6).

Table 6. Economic Impacts of Film, Radio, and TV, 2015

Direct Employment	14,640
Total Employment (Direct, Indirect, and Induced)	42,376
Labor Income	$2,742,478,280
Direct Economic Impact	$4,880,486,131
Total Economic Impact (Direct, Indirect, and Induced)	$9,411,882,995

Source: IMPLAN

Employment growth in the "Film, Radio, and TV" sector is mixed with some subcategories performing well while others experiencing huge losses. As with the "Design and Publishing" and "Performing and Visual Arts" categories,

[16] Lyons, D. (2013, December 4). Advertising loses more jobs than any other industry. *HubSpot: Marketing*. Accessed from: http://blog.hubspot.com/marketing/advertising-loses-more-jobs-than-any-industry-nj

emerging digital technologies have both positively and negatively impacted employment growth in this sector (Table 7).

Table 7. Change in Film, Radio, and TV Employment by Subsector, 2010 – 2015

Sector	2010 Employment	2015 Employment	Emp Chg	% Chg
Film, Radio, and TV	**13,234**	**14,640**	**1,406**	**10.6%**
Motion Picture and Video Industries	6,491	8,860	2,369	36.5%
Radio and Television Broadcasting	3,979	3,543	-436	-11.0%
Cable and Other Subscription Programming	1,384	1,962	578	41.8%
Video Tape and Disc Rental	1,380	275	-1,105	-80.1%

Source: Texas Workforce Commission; U.S. Census

For example, the shift from physical to digital media in consumption patterns resulted in the significant decrease of video and DVD rental stores. Online streaming of television shows and films devastated the market for the rental and sales of physical copies of those media formats. This shift has both a micro and macro impact on the Dallas-Ft. Worth region. The subsector of "Video Tape and Disc Rental" experienced an 80.1% decline in employment from 2010 to 2015. This decline represents a loss of 1,105 employees and a significant decrease in the number of stores, some of which served as informal meeting places for film aficionados and aspiring filmmakers. Unique to the region is that this decline also in-part reflects the loss of former industry giant, Dallas-based Blockbuster which filed for bankruptcy in 2010 and has since ceased all physical operations outside of a handful of franchised stores.[17] [18] Despite these losses, the 36.5% growth in "Motion Picture and Video Industries" speaks to the fact that digital technology, while having a negative effect on the distribution of product, may be having a positive effect on the creation of it. As professional grade film equipment become less expensive and easily accessible due to advances in digital technology, filmmakers like Shane Carruth are able to live in Plano and complete films in the region like the award-winning, *Primer* and *Upstream Color* which met with critical acclaim and succeeded in the global marketplace.[19] [20]

[17] Blockbuster. (2010, September 23). Blockbuster reaches agreement on plan to recapitalize balance sheet and substantially reduce its indebtedness. Press Release. Dallas, TX. Accessed from: http://investor.blockbuster.com/phoenix.zhtml?c=99383&p=irolnewsArticle&ID=1474126

[18] Halkias, M. (2015, October 20). Empty Blockbuster in Old Town leveled, but the brand lives on. *The Dallas Morning News*. Accessed from: http://bizbeatblog.dallasnews.com/tag/blockbuster/

[19] *Filmmaker Magazine*. (2004, Spring). Tech support. Accessed from: http://filmmakermagazine.com/archives/issues/spring2004/features/tech_support.php#.VnC3KKNXkhA

[20] Welch, A. (2013, April 18). Dallas filmmaker Shane Carruth makes movies the only way he knows how: The hard way. *Dallas Observer*. Accessed from: http://www.dallasobserver.com/film/dallas-filmmaker-shane-carruth-makes-movies-the-only-way-he-knows-how-the-hard-way-6429452

Performing and Visual Arts

"Performing and Visual Arts" is the third largest sector in the Dallas-Ft. Worth creative economy with $7 billion in total economic impacts supporting over 64,000 jobs that are responsible for more than $2.5 billion in labor income (Table 8).

Table 8. Economic Impacts of Performing and Visual Arts, 2015

Direct Employment	37,645
Total Employment (Direct, Indirect, and Induced)	64,054
Labor Income	$2,518,732,490
Direct Economic Impact	$3,439,241,333
Total Economic Impact (Direct, Indirect, and Induced)	$7,076,697,116

Source: IMPLAN

The sector experienced positive growth rates in most of its subsectors with the leader in terms of percentage growth being "Ornamental and Architectural Metal Work Manufacturing" which jumped 59.1% in employment from 2010 to 2015 – an employment gain of 531 jobs. This jump is presumably tied with the steady growth in residential and commercial construction in the region during the same time period. Leading the way in growth by sheer numbers in the sector are the increases of "Independent Artists, Writers, and Performers" and "Promoters of Performing Arts" with employment gains of 1,937 and 1,210 jobs respectively (Table 9).

Table 9. Change in Performing and Visual Arts Employment by Subsector, 2010 – 2015

Sector	2010 Employment	2015 Employment	Emp Chg	% Chg
Performing and Visual Arts	**30,743**	**37,645**	**5,788**	**18.2%**
Independent Artists, Writers, and Performers	13,853	15,790	1,937	14.0%
Art Dealers	469	587	118	25.2%
Performing Arts Companies	3,601	4,456	855	23.7%
Promoters of Performing Arts	5,780	6,990	1,210	20.9%
Sound Recording Industries	835	875	40	4.8%
Musical Instrument Manufacturing	54	54	0	0.0%
Musical Instrument and Supplies Stores	645	872	227	35.2%
Photographic Services	4,771	5,603	832	17.4%
Ornamental and Architectural Metal Work Manufacturing	899	1,430	531	59.1%
Custom Architecture Woodwork and Millwork	950	988	38	4.0%

Source: Texas Workforce Commission; U.S. Census

Near the bottom of employment growth in the time period examined is "Sound Recording Industries" which added 40 jobs representing a comparatively paltry growth of only 4.8%. Like publishing, the digital revolution has severely impacted the music industry in the region. With sales of music releases in physical formats a fraction of what they once were and advances in digital technology allowing musicians to make professional sounding recordings at small studios or in their homes, many no longer have careers in the music industry. At the same time, digital technology makes it much easier to be in a band, tour, and have your recordings heard. The healthy employment increase in "Musical Instrument and Supplies Stores" and the "Musical Instrument Manufacturing" subsector neither gaining or losing employment speaks to continued activity dedicated to creating music despite recent technological changes. As a result, employment growth in the Dallas-Ft. Worth region's music sector is mixed, but there is a steady stream of artists like Ft. Worth's Leon Bridges, Dallas' St. Vincent, and Denton's Midlake who have recently reached wider audiences and are finding success globally. These artists and many others are not only providing for themselves, but are creating employment opportunities for many in the region who are involved in their careers – from other musicians and sound engineers to accountants and photographers.

Museums and Education

The sector "Museums and Education" is the smallest, however it still delivers an impressive $497 million in total economic impacts resulting in just over 5,000 jobs paying $211 million in salaries, wages, and benefits (Table 10).

Table 10. Economic Impacts of Museums and Education, 2015

Direct Employment	3,046
Total Employment (Direct, Indirect, and Induced)	5,090
Labor Income	$211,866,839
Direct Economic Impact	$223,615,114
Total Economic Impact (Direct, Indirect, and Induced)	$497,426,117

Source: IMPLAN

Museums and schools dedicated to the fine arts also weathered the post-recessionary times well. Museums added over 300 employees to their payrolls for a 22.1% increase from 2010 to 2015, while employment at fine arts schools increased more than 12% with 185 employees added to their payrolls in the same time period (Table 11). Much like the employment growth observed in the manufacturing and sale of musical instruments, employment gains in museums and arts education suggest that despite the impact of digital technologies on the consumption of the arts as *physical* products, there is increasing demand for the arts as *experiential* products. This demand may be fueling more arts events and encouraging more students to seek training as painters, singers, dancers, and musicians amongst other creative careers. The employment growth in the "Performing and Visual Arts" subsectors, "Independent Artists, Writers, and Performers," "Performing Arts Companies," and "Promoters of Performing Arts" may also be explained by this shift in demand.

Table 11. Change in Museums and Education Employment by Subsector, 2010 – 2015

Sector	2010 Employment	2015 Employment	Emp Chg	% Chg
Museums and Education	**2,906**	**3,406**	**500**	**17.2%**
Museums	1,423	1,738	315	21.6%
Fine Arts Schools	1,483	1,668	185	12.5%

Source: Texas Workforce Commission; U.S. Census

When one considers museums holistically in Dallas-Ft. Worth, their impacts on the economy are much more than the numbers for their subsector indicate. Both Dallas and Ft. Worth have leveraged their impressive collection of museums as catalysts for surrounding urban redevelopment. The scale of this redevelopment is substantial, generating hundreds of millions of dollars in additional direct economic impacts and tens of millions more in indirect and induced impacts. The districts that have emerged around the museums continue to contribute to the Dallas-Ft. Worth region's economy through traffic at restaurants, retail establishments, and related tourism visits.

Conclusion

The creative economy in Dallas-Ft. Worth plays a valuable role in the region's overall economic health. In a five year post-recessionary window, the region's creative economy has outperformed the nation's and is consistently one of the most robust for metropolitan regions in the country. The creative economy's influence extends beyond firms and individuals in the creative industries. The urban landscape and how the region is perceived by others across the nation is also influenced by the creative economy. This results in new cultural districts, the retention and attraction of an educated, highly skilled workforce, and a creative "buzz" that plays a role in the decision making process of firms looking to relocate. The creative process that propels the individuals and firms in the creative economy can also spill over into other industries and drive innovation.

The recession that crippled most of the nation left the Dallas-Ft. Worth region largely unscathed. In its wake, the region's economy, population, and built environment have grown at unparalleled rates. This growth continues in Dallas-Ft. Worth and the findings of this study point to the region's creative economy following suit. As the level of creative activity in Dallas-Ft. Worth continues to rise, the results of this activity will continue to reverberate across the state, country, and world, branding Dallas, Ft. Worth, Denton, and other cities in the region as emerging creative hotspots.

Appendix A:

Methodology

An analytical framework is required to understand the scale and scope of the Dallas-Ft. Worth creative economy. The first step in creating this framework is to geographically define the Dallas-Ft. Worth region. For the purposes of this study, the U.S. Office of Management and Budget's (OMB) definition of the "Dallas-Ft. Worth-Arlington Metropolitan Statistical Area" is used as the spatial definition of the "Dallas-Ft. Worth region." The OMB definition includes the following thirteen counties: Collin, Dallas, Denton, Ellis, Hood, Hunt, Johnson, Kaufman, Parker, Rockwall, Somervell, Tarrant, and Wise.

The next step in establishing the analytical framework is setting the parameters of who should be included as part of the creative economy workforce. There are two methods to measure creative economies in a region. The first is by occupation wherein those who complete creative work are counted regardless of where they are employed. The benefit of this method is in addition to capturing workers at creative workplaces, it captures workers who may be performing creative work at non-creative workplaces. For example, this method would capture the graphic designer who works at the headquarters of a commercial airline. The second method is an industrial approach that measures the size of the creative economy by counting the number of people who work in a creative workplace regardless of if they are directly engaging in creative activity. While this method would fail to capture the aforementioned graphic designer, it does capture all of the employees at an advertising agency. Despite some creative workers not being counted, this study employs the industrial approach as it is the best way to capture the scale and scope of the Dallas-Ft. Worth creative economy and its economic influence on the region.

After deciding on an industrial approach, it is necessary to select which industrial sectors and sub-sectors should be examined. There is no consensus on which ones comprise a creative economy, but studies tend to gravitate to a standard set of industrial sectors and sub-sectors with subtle variations. This study uses sectoral classification systems developed by the Americans for the Arts and the New England Foundation for the Arts as guidelines for what best represent the Dallas-Ft. Worth creative economy. A total of four main sectors, "Museums and Education," "Performing Arts and Visual Arts," "Film, Radio, and TV," and "Design and Publishing" were identified comprising fifty-one (51) subsectors. For a complete listing of the subsectors and their corresponding North American Industry Classification System (NAICS) codes, please see Appendix B.

The final step in establishing an analytical framework is gathering employment data. For this study, data were gained from both the Bureau of Labor Statistics' (BLS) Quarterly Census of Employment and Wages (QCEW) and the U.S. Census

Nonemployer Statistics. The QCEW data is provided by workplaces employing people covered by state Unemployment Insurance laws. The U.S. Census Nonemployer Statistics data is supplied by workplaces that "have no paid employees and are subject to federal income tax," i.e., "self-employed individuals operating unincorporated businesses (known as sole proprietorships), which may or may not be the owner's principal source of income."[21] The Texas Workforce Commission publishes QCEW data for Texas metropolitan statistical areas (MSAs) on a quarterly basis. Results from the fourth quarter of 2015 are used in this study as they are the most recent available. For the MSAs (as defined spatially by the OMB) outside of Texas analyzed in this study and to give a national perspective, QCEW data published by the BLS are used. These data are published on an annual basis with the most recent available data being from 2014. The U.S. Census Nonemployer Statistics data are published annually with a two year lag time. This study uses the most recent nonemployer data available which are from 2014. The data used in this study to provide a comparative, national perspective come from the same sources used for the comparative analysis of MSAs outside of Texas.

By using both the QCEW and nonemployer data, employment is captured at creative enterprises (the QCEW data) while also counting those who are self-employed and working on a contractual basis (the nonemployer data). It should be noted that there is potential to subtly over count the number of workers in a creative economy with this data gathering approach. For example, a graphic designer may be employed full-time in one firm while also working on a contract-basis for other establishments as a sole proprietor of a firm. This designer would represent two workers in the data. However, in terms of measuring the scale and scope of a region's creative economy, the designer's creative output and resulting financial income from both employment situations is adding to the creative economy's overall economic impact on the region and must be considered. As such, this study does not adjust the data to compensate for the possibility of a worker having more than one source of employment.

Other studies have addressed the complexity of using a mix of data capturing workers at creative enterprises and those working on a contractual basis with methodological approaches that vary widely. For example, the authors of the *2015 Otis Report on the Creative Economy of the Los Angeles Region* utilize regional nonemployer data along with QCEW data, but decline to incorporate the nonemployer data in the final totals used for calculating economic impacts due to potential "double counting."[22] Conversely, authors of the *San Antonio Creative Industry 2011 Report* combine data capturing employees in creative

[21] U.S. Census Bureau. "Nonemployer Statistics." Accessed from: https://www.census.gov/econ/nonemployer/index.html

[22] Otis College of Art and Design (2015). *2014 Otis report on the creative economy of the Los Angeles region*. Los Angeles County Economic Development Corporation: Los Angeles, CA.

enterprises and those working on a contractual basis without making any mitigating adjustments before using the final totals as the basis to estimate regional economic impacts.[23]

Once the analytical framework is established and the scale and scope of the Dallas Ft. Worth creative economy quantified in terms of workforce by industrial sector, it is possible to estimate its economic impacts on the region by using IMPLAN input-output economic modeling software. IMPLAN is an industry standard tool used to calculate the direct, indirect, and induced impacts of spending and employment. To better understand this process, a brief look at how impacts for a creative firm's operations are calculated is helpful. When an advertising agency spends money to pay employee salaries, buy supplies, and cover other operating expenses, it is creating the *direct* effect. When the businesses that supply the advertising agency with goods or services (e.g., accounting firm) pay their employees or purchase supplies, they create the *indirect* effect. When employees of the advertising agency and its supporting businesses spend their income, this causes the *induced* effect. When combined, the activity from the direct, indirect, and induced impacts is referred to as the "multiplier effect."

[23] Nivin, S. and Halebic, M. (2011). *San Antonio Creative Industry 2011 Report: Economic impact and significance*. City of San Antonio Office of Cultural Affairs: San Antonio, TX.

Appendix B:

Dallas-Ft. Worth Creative Economy Sectors by North American Industrial Classification System (NAICS) Code

NAICS	Museums and Education
712110	Museums
611610	Fine Arts Schools
	Performing and Visual Arts
711510	Independent artists, writers, and performers
453920	Art Dealers
711110	Theater Companies and Dinner Theaters
711120	Dance Companies
711130	Musical Groups and Artists
711190	Other Performing Arts Companies
711310	Promoters of Performing Arts, Sports, and Similar Events with Facilities
711320	Promoters of Performing Arts, Sports, and Similar Events without Facilities
512210	Record Production
512220	Integrated Record Production/Distribution
512230	Music Publishers
512240	Sound Recording Studios
512290	Other Sound Recording Industries
339992	Musical Instrument Manufacturing
451140	Musical Instrument and Supplies Stores
541921	Photography Studios, Portrait
541922	Commercial Photography
332323	Ornamental and Architectural Metal Products Manufacturing
337212	Custom Architectural Woodwork and Millwork Manufacturing
	Film, Radio, and TV
512110	Motion Picture and Video Production
512120	Motion Picture and Video Distribution
512131	Motion Picture Theaters (except Drive-Ins)
512132	Drive-In Motion Picture Theaters
512191	Teleproduction and Other Postproduction Services
512199	Other Motion Picture and Video Industries
515111	Radio Networks
515112	Radio Stations
515120	Television Broadcasting
515210	Cable and Other Subscription Programming
532230	Video Tape and Disc Rental
	Design and Publishing
541310	Architectural Services
541410	Interior Design Services
541420	Industrial Design Services

Appendix B:

Dallas-Ft. Worth Creative Economy Sectors by North American Industrial Classification System (NAICS) Code
(Continued)

	Design and Publishing (Continued)
541430	Graphic Design Services
541490	Other Specialized Design Services
339950	Sign Manufacturing
511110	Newspaper Publishers
511120	Periodical Publishers
511130	Book Publishers
4512	Book, Periodical, and Music Stores
519130	Internet Publishing and Broadcasting and Web Search Portals
541810	Advertising Agencies
541820	Public Relations Agencies
541830	Media Buying Agencies
541840	Media Representatives
541850	Outdoor Advertising
541860	Direct Mail Advertising
541870	Advertising Material Distribution Services
541890	Other Services Related to Advertising

Appendix C

IMPLAN Sectors

Sector	Description
242	Ornamental and architectural metal work manufacturing
374	Custom architectural woodwork and millwork
388	Sign manufacturing
390	Musical instrument manufacturing
417	Newspaper publishers
418	Periodical publishers
419	Book publishers
423	Motion picture and video industries
424	Sound recording industries
425	Radio and television broadcasting
426	Cable and other subscription programming
432	Internet publishing and broadcasting and web search portals
444	Video tape and disc rental
449	Architectural, engineering, and related services
450	Specialized design services
457	Advertising, public relations, and related services
458	Photographic services
488	Performing arts companies
491	Promoters of performing arts and sports and agents for public figures
492	Independent artists, writers, and performers
493	Museums, historical sites, zoos, and parks
404	Retail - Sporting goods, hobby, musical instrument and book stores
406	Retail - Miscellaneous store retailers
474	Other educational services

About the University of North Texas Economics Research Group

The University of North Texas Economics Research Group (ERG) was established in 1989 as the Center for Economic Development and Research and rebranded in 2016. The ERG conducts economic analysis, public policy research, and provides forecasting and strategic planning services to businesses, governments, and non-profit agencies. Interdisciplinary by design, the ERG draws upon a wide range of faculty and staff resources across the university as well as outside consultants when the need arises. Since its inception, the ERG has prepared more than 120 reports covering a broad range of topics including strategic economic development planning, economic impact analyses, labor market studies, land use planning, housing, demographic and economic forecasting, and economic and fiscal impact assessments. This research often supports policy analysis regarding topics such as urban redevelopment, energy, transportation, entrepreneurship, and the creative economy among many others. ERG clients have included the Texas Public Policy Foundation, the Texas Department of Transportation, Texas General Land Office, Railroad Commission of Texas, the Texas Comptroller of Public Accounts, the Texas Workforce Commission, and the Joint Economic Committee of the U.S. Congress.

Michael C. Carroll, PhD is the director of ERG and a Professor of Economics at the University of North Texas. Dr. Carroll's business and economics career dates from 1982, including service as a professor of economics, corporate controller, operations manager, and a corporate president. Dr. Carroll is Editor-in-Chief of *Regional Science Policy & Practice* and Associate Editor of *Economic Development Quarterly*. He has delivered more than one hundred papers at academic conferences and published more than eighty academic articles, book chapters, and policy monographs. His writing has appeared in a variety of academic journals including, *the Journal of Economic Issues*, *Annals of Regional Science*, *Review of Social Economy*, *Applied Geography*, and *Letters in Spatial and Resource Sciences*. Dr. Carroll's academic work has won numerous awards including the Springer Best Paper Award in 2010, the University Economic Development Association Research Award 2009 & 2011. His research interests focus on regional economic development strategies and social economics.

Michael Seman, PhD is the senior research associate at ERG and his work primarily examines the intersection of the creative economy, entrepreneurship, and economic development on the urban landscape. Dr. Seman is currently writing a book about music scenes and how they can transform cities for the University of Texas Press. His co-edited volume concerning the production and consumption of music in the digital age was published by Routledge in 2016 as part of their Contemporary Human Geography Series. Dr. Seman's work can be found in many academic journals including *Cities*, *Regional Science Policy and Practice*, *Applied Research in Economic Development*, *City, Culture and Society*, *Industrial Geographer*, and most recently in *Artivate: A Journal of Entrepreneurship in the Arts*. National Public Radio, *Wired*, *The Washington*

Post, and many other national and regional media outlets seek his perspective concerning the creative economy. Dr. Seman was one of 22 globally invited to attend the Experience the Creative Economy conference at the University of Toronto's Martin Prosperity Institute in 2011 and he is often invited to speak at professional and civic events across the country.

Contact

University of North Texas Economics Research Group
www.economicsresearch.unt.edu
economicsresearch@unt.edu
940.565.4049