

Defining the Creative Economy:
Industry and Occupational Approaches

Ann Markusen
Professor and Director
Project on Regional and Industrial Economics
Humphrey Institute of Public Affairs, University of Minnesota
301 S. 19th Avenue, Rm 231
Minneapolis, MN 55455
markusen@umn.edu
612-625-8092

Gregory H. Wassall
Professor and Graduate Coordinator
Department of Economics
Northeastern University
Boston, MA 02115
g.wassall@neu.edu
617-373-2196

Douglas DeNatale
President
Cultural Logic, Inc.
166 Hawthorne Street
Malden, MA 02148
denatale@comcast.net
781-956-5682

Randy Cohen
Vice-President, Policy & Research
Americans for the Arts
1000 Vermont Avenue, NW, 6th Floor
Washington, D.C. 20005
rcohen@artsusa.org
202-371-2830

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AUTHOR BIOS

Ann Markusen is a professor and director of the Project on Regional and Industrial Economics at the Humphrey Institute of Public Affairs, University of Minnesota. See her studies *Crossover*, *Artists' Centers*, and *The Artistic Dividend* at <http://www.hhh.umn.edu/projects/prie>.

Gregory H. Wassall is an Associate Professor of Economics at Northeastern University. He has worked in collaboration with Douglas DeNatale on the development of the New England Creative Economy Initiative.

Douglas DeNatale, Ph.D., is president of Cultural Logic, Inc., a consulting firm specializing in online information systems. He was a leader in the development of the New England Creative Economy Initiative while director of research at the New England Foundation for the Arts.

Randy Cohen is vice-president of policy and research at Americans for the Arts—the national organization advancing the arts in America—where he has directed research initiatives since 1991.

Abstract

In addressing regional creative economies, this paper reviews conceptual and operational issues in defining the creative sector and its arts and cultural core. Some accounts use establishment data to measure creative industry employment, some use firm-level data, and others use occupational data. We examine how cultural sector employment is conceptualized in three pioneering cultural economy studies, each driven by distinctive policy agendas and constituencies. Choices about which industries, firms, and occupations to include affect the resulting size and content of the cultural economy. In comparing these three studies as well as others, we show that the Boston metro's creative economy varies in size from less than 1% of its workforce to 49%, the latter using Florida's (2002) creative class, although most cultural definitions range from 1% to 4%. In closing, we explore how policymakers might use a combination of all three methods to produce a richer characterization of the regional cultural economy and reflect on the relevance of good numbers to cultural policy and creative region formation.

Because of growing interest in creative cities and cultural industries, scholars of economic development enjoy a new frontier for timely research with planning and policy implications. However, diverse literatures often use the terms *creative* and *cultural* without clearly defining them and without transparency in the use of data and statistics to measure and compare them. Cities rush to commission cultural plans and mandate cultural districts, states fund "cool cities" programs, and real estate interests dub certain areas of cities creative without the benefit of careful reasoning and empirical analysis.

In this article, we propose a set of nested definitions of the creative economy that researchers and policy makers can use with relative precision and for useful policy work. We explore the conceptual underpinnings of the terms creative and cultural, both fuzzy concepts. The term "creative" is popular but problematic. In this article, we compare the creative economy definitions with the more targeted cultural economy notion.

We use employment as our metric and distinguish between two ways of conceptualizing creative workers: those employed in cultural industries and those belonging to cultural occupations. Cultural occupational analysis focuses more closely on what cultural workers do rather than what they make and is useful for thinking through the workforce development aspects of the cultural economy and how they are linked to entrepreneurship and new firm formation. A central contribution of our article is to illuminate the differences between the two conceptual approaches. Cultural industries employ many workers whose work does not involve creative tasks, whereas cultural occupations include many cultural workers who are self-employed rather than assigned to any particular industry. Good secondary data sources at regional as well as national scales

enable us to use both the industry and occupational lenses to understand the presence of creative activity in a region (Markusen, 2004).

In policy and planning practice, the choice of appropriate scale is often linked to the particular problem faced or agenda set by advocacy and policy constituencies. We explore three different approaches to operationalizing the cultural economy with these metrics based on the authors' respective research and policy work with the New England Creative Economy project, the Americans for the Arts, and the University of Minnesota's Project on Regional and Industrial Economics. We explain the original vision and intent of each body of work, how each defines and measures the presence of cultural industries, and the uses to which the work has been applied. Because each project uses different data sets to explore the cultural economy, we note in passing the strengths and weaknesses of each of these data sources.

We then compare interpretations of the size and character of the creative economy using the two employment metrics—industry and occupation—and nested estimates for each for the Boston metro area and the United States. For the occupational comparison, we include, in addition to our metrics, estimates for Florida's (2002) creative class and for the National Endowment for the Arts's artistic workforce. The resulting estimates of creative employment vary dramatically, from less than 1% of the national workforce to nearly 50%. Employment in cultural industries is higher than in cultural occupations because the former include all workers, whether they produce cultural content directly or indirectly. The comparisons show policy makers how important a set of cultural producers is to the regional economy overall and how sensitive such estimates are to definitional choices.

We also undertake an analysis of cultural occupations by industry, revealing marked differentials in the distribution of artists among industries for three major metro regions—Boston, Chicago, and Los Angeles—and how these diverge from the national profile. This analysis also suggests that if artistic occupations were used to identify cultural industries, as in the high tech-sector, the composition of the cultural industry set would include some sectors such as religious institutions and scientific services generally omitted in existing accounts.

In our closing section, we reflect on the need for consensus among researchers and users on definitions of the cultural, or creative, economy. Given differing agendas on the part of research users—arts advocates, local and state economic developers, cultural training institutions, city planners—a set of nested definitions of cultural industries and occupations is the best researchers can do at present. Even these need further debate and refinement, as noted in our conceptual discussion. For instance, should religious, sports, and gambling enterprises be included? Furthermore, researchers must balance conceptual clarity with pragmatic limits imposed by existing data sets. For instance, at present, it is impossible to break out arts administrators and arts teachers from umbrella occupational groups. We believe that ongoing conceptual discussion, efforts to hone categories and data points used to operationalize the cultural economy, and discussion of constituency stakes will contribute to greater rigor in creative economy research and efficacy of policy approaches.

Why are clear conceptualizations and careful estimates of the creative workforce important to economic development? They enable us to assess and compare change over time in creative activity among regions. They enable us to add the presence of creative

contributions to multivariate models of urban development. Above all, they enable the targeting of local and regional policies to address the unique creative assets and deficits of particular places.

Cultural Economy Conceptualization

In recent years, two distinctive research trajectories have converged on the regional cultural economy—one focused on places and the other on industries. Two early American place-focused efforts, regional scientist Harvey Perloff's team study of Los Angeles, *The Arts in the Economic Life of a City* (Perloff and the Urban Innovation Group, 1979) and his own study (1979) and the New York-New Jersey Port Authority's *The Arts as an Industry: Their Economic Importance to the New York-New Jersey Metropolitan Region* (1983) first worked the cultural/urban interface. In Europe, scholars, planners, and politicians began to espouse the development of cultural spaces and activities as a way to revitalize deindustrializing central cities, writing about a vision and practice for "the creative city" (Bianchini, Fisher, Montgomery, & Worpole, 1988; Landry, 2003; Landry, Bianchini, Ebert, Gnad, & Kunzman, 1996). American initiatives for creative cities and regions followed (e.g., Center for an Urban Future, 2005; Mt. Auburn Associates, 2000, 2005).

Second, beginning in the 1990s, British and American sociologists, geographers, and economists began to explore cultural industries, a set of sectors that cut across manufacturing and service industries, as a unique and growing phenomenon in regional and national economies (Chartrand, 2000; Hesmondhalgh, 2002; O'Brien and Feist, 1997; Power, 2002; Power and Scott, 2004; Pratt, 1997, 2004; Vogel, 2001;). These two streams were brought together in novel ways by Florida (2002) and Scott (1997, 2003) in

their work on "the creative class" and "the cultural economies of cities," respectively. In yet another stream of work, some researchers proposed that the cultural economy be gauged by occupation as well as industry (Markusen & King, 2003; Markusen & Schrock, 2006). In both academic and policy worlds, this work expanded the range of inquiry beyond a singular focus on the nonprofit arts (e.g., Gray and Heilbrun, 2000); Heilbrun and Gray, 1993)

From the outset, concepts and measures of what constitutes a creative economy, creative city, creative class, cultural industry, and cultural workforce have been contested. Several critiques of the Florida account of the creative class and its spatial distribution have been written (Lang & Danielsen, 2005; Markusen, 2006; Peck, 2005; Stern & Seifert, 2007). The concept of cultural industry has been subjected to similar scrutiny. One researcher reflecting on the state of the art writes, "In general, it has been very difficult to reach consensus about what the proper boundaries of the creative industries ought to be, and many remain skeptical about whether existing industrial classifications provide enough information to correctly identify creative enterprises" (Tepper, 2002, p. 163). Another notes: "In the main, the statistical disputes around cultural sector employment figures have been the least illuminating, often the most absurd, and certainly the most tedious aspect of the debate around culture and the economy" (O'Connor, 2002). It is this challenge that we take up in this article. In the first section, we tackle the conceptualization of the cultural economy, followed by accounts of three recent pioneering experiments at operationalizing alternative definitions with different data sources.

Fuzzy Definitions of the Cultural Economy

In general, user exasperation with writing on the creative city and the cultural sector often stems from the sense that multiple meanings underpin the use of these rubrics in different contexts and empirical accounts. Users don't really "know it when they see it," a function of both elasticity in writers' conceptualizations and lack of transparency in data used to document it (Markusen, 2003). Often, researchers using these categories are not clear what each encompasses or candid about data limitations. Even worse, they are often not very imaginative or knowledgeable about the terms and data they use. A simple example is Florida's (2002) definition of the creative class, which includes large lumpy occupational categories that are defined by the government agencies that create them, largely on the basis of educational attainment and credentials. So in Florida's usage, the creative class boils down to those who have received higher education, whether or not they are actually doing creative work and excludes all creative workers without degrees (Markusen, 2006; Stern & Seifert, 2007). Because this definition is both crude and politically repugnant, we do not use the term *creative class* in our work.

In this article, we explore the two dimensions of the creative economy most often used to gauge employment at the regional level: cultural industries and cultural occupations. Cultural industries consist of those establishments—for profit, nonprofit, and public—that produce cultural goods and services. The best conceptual definition of cultural industries is offered by sociologist Hesmondhalgh (2002), who uses Williams's (1981) notion of "the signifying system" through which a social order is communicated, reproduced, experienced, and explored (p. 11). Cultural industries, then, are directly involved in the production of social meaning in the form of texts and symbols. In

Hesmondhalgh's view, cultural industries "include television, radio, the cinema, newspapers, magazine and book publishing, music recording and publishing industries, advertising, and the performing arts. These are all activities the primary aim of which is to communicate to an audience, to create texts" (p. 12). He treats other activity as "peripheral" because it does not use industrial methods, including theater and the making and selling of art works such as paintings and sculpture. His discussion includes an interesting account of why cars, software, consumer electronics, cultural industry hardware, and sports are borderline cases.

Less debate has taken place over what should constitute cultural occupations, but various scholars use more or less expansive definitions, as we recount in a later section. For the most part, we do not conflate the "creative economy" with the cultural economy in our work because others using this term, including Florida, include science, engineering, computing, and education sectors in the former, which we do not.

Criteria for Inclusion in the Cultural Economy

The definitions used for industries and occupations are shaped by three competing realities. First, researchers strive for a defensible conceptual definition of cultural that is clearly distinguishable from other domains in the economy. Second, each research effort has particular constituencies and policy arenas in mind. This commitment to policy relevance often shapes the definitions chosen. Third, available data sources, although multiple and of relatively high quality, are often frustratingly aggregated by industry, by occupation, and by region in ways that clash with conceptual approaches and policy needs.

In our projects, we have separately struggled to balance the demands of these three forces. In each body of work below, we explain the origins of the research and how each project was conceived with particular concepts, data sources, constituents, and policy arenas in mind. Our conclusion is that a set of nested definitions for both cultural industries and cultural occupations is possible. Two of the projects reviewed offer core and peripheral or expanded definitions of the cultural economy, operationalized with different data sets.

The boundaries of the cultural economy continue to be fuzzy and are currently the subject of lively debate. To the group that Hesmondhalgh (2002), Pratt (1997), Power (2002), Scott (1997, 2003) and others normally include in their definitions, the following additions have been suggested.

Religion. Religious establishments are clearly makers and disseminators of texts and symbols. They provide spaces and experiences in which people engage in cultural expression and exchange, they produce and perform cultural events, and they share the nonprofit organizational form with many of the performing arts. No researcher except Chartrand (2000) includes the religious sector in the definition of cultural industries, and no occupational accounting includes pastors, ministers, rabbis, or imams as cultural workers. Yet one third of all musicians in the United States work for religious organizations (Markusen and Schrock, 2006). Americans for the Arts is conducting a project, Partnerships for Sacred Places, to explore the intersections between religion and culture, and the American Composers' Forum's pioneering Faith Partners program in the 1990s paired up composers with churches and synagogues as places open to new music

(Markusen & Johnson, 2006). Religion as a cultural sector raises many uncomfortable questions for researchers and arts advocates.

Sport, recreation, and entertainment. Most cultural industry work operates from a supply-side perspective. But for consumers, cultural activities like theater, film, reading, and museum going compete with sports, gambling, circuses, and other recreational options as uses of their discretionary income and leisure time. Some authors (Beyers, 2006; Vogel, 2001) include sports and recreation in their definition of cultural industries. Sports, entertainment, and the arts bear some similarities, all requiring often-subsidized facilities such as stadiums, casinos, and performing arts complexes (Seaman, 2003), although they differ in occupational character and multiplier effects (Markusen & Schrock, 2006). Hesmondhalgh (2002) argues that sport is competitive whereas symbol making is not and that cultural texts tend to be more scripted or scored than sport, which is improvised within a set of competitive rules. The fact that recently reformulated North American Industry Classification System (NAICS) codes lump arts, entertainment, and sports together makes it more difficult for researchers to distinguish arts from other elements and reveals that arts and cultural advocates were not represented at the table when the federal government was refashioning its codes in the 1990s.

Education: general and arts. Although educators produce and work with texts and symbols, the educational sector is not generally included in the definition of the cultural economy. The New England and Americans for the Arts projects, described below, include independent fine arts schools but not arts and design activities in colleges and universities because it is impossible to break out the arts faculty and establishments from science, engineering, medicine, law, and business. A strong case can be made for

including arts educators as cultural workers—National Endowment for the Arts tallies included them in the past when earlier coding schemes broke them out.

Information. Software publishing provides another challenging case. There are similarities in production processes between software and other cultural industries, but Hesmondhalgh (2002) argues that the actual presentation of the product does not take the form of a text, and its uses—chiefly to carry out certain computerized tasks—outweigh aesthetic dimensions. The New England project includes software in its consideration of peripheral cultural industries. High-tech advocates were successful in the recent NAICS recoding in securing an "information industry" grouping, although many experts remain skeptical of the coherence of the notion. Nevertheless, the claim that there exists an information industry competes, as does the notion of an entertainment industry, with the effort to distinguish a separate cultural industry.

Supplier sectors and distributors. When mapping the whole of the impact of a sector on the regional economy, some researchers incorporate the entire supply chain in the industry definition. This helps policy makers see connections between supplier (upstream) sectors and distributors (downstream), all of whose employment may be attributable to the industry's presence. A pioneering study of the music industry in Seattle, for instance, includes the makers of instruments and recording equipment as well as the retail outlets where compact discs are sold and clubs and orchestra halls where live music is played (Beyers, Bonds, Wenzl, & Sommers, 2004). The New England project has incorporated many supplier sectors into its core cultural industry definition, including manufacturing of photographic film, printing machinery, and musical instruments. It also includes distribution activities from retail outlets that sell music, jewelry, and books to

those that sell equipment for consuming cultural content, such as radios, TV, stereo systems, and portable listening devices.

Even within the commonly included cultural industries, there are sectors that raise eyebrows. Advertising, for instance, could be considered mainly informational and merely a supply industry to manufacturing and service industry clients, rather than primarily a producer of texts. Fashion (i.e., clothing) is not included by anyone in the cultural industries, even though fashion designers are often included as cultural workers. Hesmondhalgh (2002) argues that clothing is more about functionality than signifying, but this is debatable. The printing industry produces large numbers of relatively routine and purely informational publications such as directories, catalogues, manuals for businesses and consumers, and textbooks for students. One source of confusion, we believe, is that most researchers rely on conceptual definitions driven by the supply side—by the leaders of arts and cultural industries and their conception of the cultural—versus the demand side, where consumption patterns (and an enlarged domain with religion, sports, recreation, and entertainment) more closely fit the sociological notions of text and symbol, and signifying versus functionality.

We do not, in what follows, incorporate these border arenas into our definitions of the cultural economy. Yet including any one of them would change the size and character of the sector and alter the constituency for cultural policy. By just how much is an empirical question. Next, we explore how our three different projects have delineated the cultural economy and how employment estimates differ as a result. We chose Boston as a case study metro because it is among the U.S. metros with a relatively high location quotient for cultural activity, regardless of which metric is used, but it is not one of the

super-cultural metros: Los Angeles, New York, and San Francisco (Markusen & Schrock, 2006). Boston is representative of modestly culturally rich midsized metros such as Seattle, Minneapolis-St. Paul, and Washington, D.C. that have cultural employment densities between 15% and 50% above national averages.

Three Policy-Driven Research Approaches to Creative Regional Economies

Researchers working in conjunction with particular policy agendas in particular regions have tailored definitions of creative industries and creative occupations to the perspectives of their policy counterparts. In this section, we review three seminal efforts to define the creative/cultural economy at the subnational level and estimate its size in terms of employment: the Creative Economy project of the New England Federation for the Arts (NEFA), the Creative Industries Research Project of the Americans for the Arts (AFTA), and the Cultural Occupations project of the University of Minnesota's Project on Regional and Industrial Economics (PRIE). For each, we document the origins of the effort and its policy concerns, the creative definitions developed, and the methodologies (including data sources) used. We compare resulting estimates of employment in the creative economy as well as those that have emerged from the efforts of Richard Florida and the National Endowment for the Arts.

In the economic development field, researchers have long used industries as a primary way of envisioning and analyzing a regional economy, an approach favoring physical capital over human capital. Researchers have begun to develop a complementary occupational approach to the regional economy, probing "what workers do" rather than "what they make" (Feser, 2003; Markusen, 2004, 2007; Mather, 1999; Thompson & Thompson, 1985, 1993). In the industry approach, employment is conceptualized and

measured by allocating all jobs in earmarked creative establishments—actual physical locations of production and service—into nested industries defined by major product. Regional industry employment is then computed by totaling all jobs in all establishments in each industry. In an occupational approach, employment is divided into nested occupational groups based on skill content and work process (Hecker, Pikulinski, & Saunders, 2001). Regional creative employment can thus be studied using "stereo vision" with industry and occupational "lenses" and compared to other regions (Markusen & Schrock, 2007). In what follows, we show how each project incompletely achieves this vision.

In brief, we show that the New England Creative Economic Initiative, designed to articulate the nature and significance of the cultural sector in the region and build a commercial/nonprofit/community coalition around state and local cultural policy, employs a broad definition of the creative economy yet restricts it to cultural activity and not science, engineering, and other high human capital fields. They further divide these into core activities, consisting of industries and occupations that directly make, produce, or market cultural product and enabling peripheral activities such as producing and repairing dedicated equipment to retailing cultural outputs. The New England project relies upon tabulations from the 2002 Economic Census to estimate employment in cultural industries, and on tabulations from the 2000 Population Census Public Use Microdata Sample for estimates of employment in cultural occupations. The Economic Census is updated every five years, and industry employment estimates are made annually in the intervening years using County Business Patterns. Similarly annual updates of employment in cultural occupations are made using the Current Population

Survey and the American Community Survey. Their estimates are thus larger than the estimates of the other two projects, though still smaller than Florida's creative class.

AFTA began its Creative Industries project to demonstrate the significance of cultural businesses and jobs in every congressional, legislative, and city council district in the United States because they are an umbrella group for arts funding and policy advocates at the local, state, and federal levels. AFTA's conception of cultural industries is confined to those with substantial artistic content and does not include some industries used in the NEFA studies. They estimate artistic employment from commercial data on businesses rather than government data from establishments. Using Dun & Bradstreet (D&B) data, they estimate both the numbers of firms engaged in cultural production and their employees. The D&B data are available by the end of the current year and allow for tracking of annual changes, timelier than the 5-year Economic Census used by NEFA and the decennial Population Census used by PRIE. Their 2006 cultural industry employment estimate for the Boston metro is 30% below the NEFA estimates for 2002.

The Project on Regional and Industrial Economics's initial policy agenda was to challenge and expand the use of arts impact analysis, widely employed to lobby for arts funding but confined to the larger nonprofit arts institutions in a region and the jobs they create from direct and associated spending by patrons. Their work highlights individual artists as an occupation and their high rates of self-employment. PRIE defines artists narrowly, close to the National Endowment for the Arts usage, but also tracks an expanded arts and cultural workers category that includes architects, designers, and media workers. PRIE uses Census of Population Public Use Micro-data Series, a 5% sample of households that captures self-employed artists (if artwork is their primary

occupation gauged by the number of hours worked, not income). Census figures are still an underestimate because they do not include artists who work a second job. The census is available only decennially, a drawback, but it permits detailed socioeconomic, mobility, and income analysis for fine-grained spatial units.

The New England Creative Economy Initiative: New England Foundation for the Arts

Well before Florida's coining of the creative class rubric, a group of organizations and researchers in New England launched a Creative Economy Initiative in 1998 to study and advocate for the region's cultural economy. Building on a rich history of nonprofit arts research in New England (DeNatale & Wassall, 2006), their goal was to demonstrate that creative enterprises and individuals provide a significant contribution to local and regional economies, fueling other sectors of the economy in unique ways.¹ The resulting Mt. Auburn Associates (2000) report, *The Creative Economy Initiative: The Role of the Arts and Culture in New England's Economic Competitiveness*, identified three components:

- The Creative Cluster, defined as those enterprises and individuals that directly and indirectly produce cultural products (commercial and nonprofit industries)
- The Creative Workforce, defined as the thinkers and doers trained in specific cultural and artistic skills that drive the success of leading industries that include, but are not limited to, arts and culture (occupations in commercial and nonprofit sectors)

- The Creative Community, defined as a geographic area with a concentration of creative workers, creative businesses, and cultural organizations

This report with its discussion and analysis of a “creative sector” in the region’s economy has had two important outcomes. First, advocates for a greater role of the cultural sector in the economy have used the arguments and data found within it to demonstrate that this sector is a driver of economic growth in the region. Second, by defining the Creative Cluster and Creative Workforce, it became possible to use information from secondary sources to assess their size and scope. This has proved to be useful for planners and advocates.

During the past two years, the New England Foundation for the Arts (NEFA), in consultation with DeNatale and Wassall and with the input of regional and national researchers, spearheaded an effort to reexamine and refine the operational definitions in the 2000 Creative Economy Initiative. The goal was to put forward a defensible and realistic definition of that portion of the creative economic sector that produces cultural products and services and a set of methodological principles that can be applied consistently in New England and elsewhere to identify both cultural industries and the cultural workforce.

The new NEFA definitions are more expansive than those in the 2000 Mt. Auburn report, identifying each category within the respective industry and occupation classification systems involving the production of cultural goods and services and further distinguishing those categories that can be reasonably expected to capture *only* the production of cultural goods and services. Thus, for both the industry clusters and the

occupation groupings, “core” and a “periphery” were defined; those industries or occupations that directly make, produce, or market a cultural product are placed within the core. Other industries or occupations both within and outside the cultural domain (e.g., the woodworking occupation or the software industry) are considered peripheral and would not normally be counted as part of the cultural industries or workforce.² The core component consists of 93 six-digit NAICS industries (see Appendix, Table A1), and the periphery encompasses an additional 24 industries (available on request).

The NEFA project uses the 2002 Economic Census, which asks employers to identify employment by disaggregated industry sector and occupation and thus does not include the self-employed or public sector employers.³ With these data, the new NEFA definitions estimate cultural industry employment in the Boston metro at 101,787 for 2002, just over 4% of total employment (Table 1). The shares are somewhat lower for Massachusetts and all New England, but all are higher than for the nation. Densities, as gauged with location quotients, are all above one, with Boston's the highest.

Similarly, the NEFA project allocates occupations that constitute the cultural workforce into a core and periphery. The core is defined as occupations where all members are likely to be producing, or assisting in the production of, a cultural product or service. The peripheral occupations focus more on artisanal work. The New England core definition encompasses 31 census occupational categories (see Appendix, Table A2), whereas another 18 are considered peripheral (available on request). The core cultural workforce (including the unemployed) is estimated to be 72,434 for the Boston metro in 2002, almost 4% of the workforce, compared with 2.7% nationwide. Below, we

compare these with the estimates of cultural economy employment from several other research efforts.

Defining Cultural Industries with Firm Data: Americans for the Arts

The 1990s were a difficult period for artists and arts advocates. Vociferous conservative attacks on the National Endowment for the Arts following the Robert Mapplethorpe and Karen Finley controversies cut deeply into National Endowment for the Arts funding, reductions mirrored in state arts budgets (Ivey, 2005; Kreidler, 1996). Americans for the Arts (AFTA), the national umbrella arts advocacy organization, found that one way to fight waning public support for arts and culture is to help public and private sector leaders—those who affect policy, funding, and shape opinions—understand the economic benefits gained by communities with a vibrant arts presence. AFTA initiated its Creative Industries research project (Americans for the Arts, 2004) that quantifies and maps arts-centric businesses and employment at the local, state, and national levels, providing them to arts and community leaders. The project is thus constituency- and policy-driven.

In defining cultural industries, AFTA includes both for-profit and nonprofit businesses involved in the creation or distribution of the arts. It identifies firms, not just establishments, and includes industries that produce cultural products (movies, TV and radio shows, novels, musical recordings, paintings, and prints); provide space and aesthetic character for consumption (architecture, design); and enrich community livability through direct, live, cultural experience (museums, public art, performing arts, arts education). It excludes industries such as software programming and scientific research—both creative but not focused on arts and culture. Six broad categories

comprise AFTA's creative industries: museums and collections; performing arts; visual arts and photography; film, radio, and TV; design and publishing, including advertising; and arts schools and services.

To identify cultural businesses, AFTA uses data from D&B that tracks the type and number of arts-centric businesses and their employees.⁴ Employment data are collected and identified by firm on the basis of individual establishments coded geographically rather than by firm headquarters. D&B updates are less timely than Bureau of Labor Statistics (BLS) data but more timely than the *Population Census* or *County Business Patterns*. Every business is also assigned a Standard Industrial Classification (SIC) code. AFTA uses 643 eight-digit SIC codes in its cultural industries set. D&B's data set includes nonprofit organizations, though AFTA tests suggest an underrepresentation of nonprofit arts organizations and individual artists.

For January 2006, AFTA identifies over 548,000 arts-centric businesses employing 2.9 million workers nationally. These amount to 4.3% of all businesses and 2.2% of all employees in the D&B database. The Boston metro is home to 13,777 arts-related businesses that employ 73,003 people (Table 2). Comprised of smaller establishments, the visual arts and photography sector accounts for 34% of arts-centric businesses but just 22% of arts employment. Conversely, larger scale museums and collections account for 2.6% of the businesses but 7.9% of employment. During a recent 2-year period, the more commercial segments of cultural industries—design and publishing; visual arts and photography; and film, radio, and TV—have posted higher employment growth rates than museums, performing arts, and arts schools dominated by nonprofits. Mapping each establishment onto the metro region, the AFTA research shows

how broadly distributed arts-related businesses are throughout the metropolitan statistical area, a pattern they have found holds across metros (Figure 1).

[Insert Table 2 about here]

[Insert Figure 1 about here]

AFTA has produced and makes freely available online Creative Industries maps and reports for all 50 states, 435 U.S. Congressional Districts, and 7,386 State House and Senate Districts. Using mapping technology, one can localize the data to any geographic area or political district in the country. This enables AFTA to provide detailed data about creative industries at the local and state levels and for any political jurisdiction. The cultural industries data have been used by many arts and cultural advocacy groups to educate legislatures, city councils, and the larger public about the impact of cultural activity in their jurisdictions.

An Occupational Approach to the Cultural Economy: the PRIE Studies

In the late 1990s, the Project on Regional and Industrial Economics (PRIE) at the University of Minnesota began the Arts Economy Initiative, an intensive study of metro cultural economies using artists as core cultural workers. The initiative was designed to help cultural policy makers transcend the limits of arts impact analysis, generally confined to the nonprofit sector, by incorporating commercial arts employment and artists' self-employment, including the direct export of their work (Markusen & King, 2003). The study of artists and related cultural workers was, in turn, a data-intensive case study of a particular occupation and its relationship to both cultural industries and

regional economies. This served as part of a larger project to explore an occupational rather than industrial approach to economic development planning.

Artists exhibit very high levels of self-employment (45% nationally compared with 8% in the workforce as a whole) and are relatively footloose and unevenly distributed across U.S. regions and metropolitan areas, often choosing where to live and work independent of job offers from employers (Markusen & Schrock, 2006). PRIE defines core cultural workers as artists—musicians, writers, performing and visual artists—following social science conventions (e.g., Heilbrun, 1987; Wassall & Alper, 1985; Wassall, Alper, & Davison, 1983). PRIE considered adding architects, designers, editors, and other related cultural workers to the definition because these occupations also exhibit high self-employment rates, and members of these occupations are doing work on symbols and texts. But many do not consider themselves artists, and many are doing purely functional work. Adding them would triple the size of the creative core and dilute the artistic content of the definition.⁵ Therefore, PRIE uses a nested occupational definition, comparing the more focused group, artists, and the more inclusive group, artists and related cultural workers (Table 3).

[Table 3 about here]

The PRIE team used Population Census Public Use Micro-Data Sample (PUMS) 5% sample data (Ruggles, Sobek, Fitch, Hall, & Ronnander, 2003), which asks artists on the basis of their residence to identify their occupation and industry. Analysis of this census data produces much higher estimates of employed artists than do employer-based data sources that do not include the self-employed. For instance, for the Boston metro, the 2000 Census estimated 4207 writers compared to the BLS estimate of 1120

(Markusen, Schrock, & Cameron, 2004, Table 10). These data yield a population estimate of 15,515 working artists for the Boston metro in 2000. Adding related cultural workers to the mix, the total rises to 50,890. Boston's density of artists compares favorably with many other metros of its size in the United States (Markusen & Schrock, 2006).

The PRIE research on cultural workers has been used extensively at the state and local levels, both comparatively and for particular cities and regions. PRIE has created detailed profiles of the 2000 artistic workforce for many states and metropolitan regions and shared them with arts researchers, government policy makers, artists' organizations, advocacy groups, and consultants. Separate studies of the Minneapolis-St. Paul and Los Angeles and San Francisco Bay cultural economies have mapped and compared the artistic workforce by artistic discipline, industry, socioeconomic characteristics, and migration patterns (Markusen, Gilmore, Johnson, Levi, & Martinez, 2006; Markusen & Johnson, 2006). PRIE researchers have given dozens of talks to large public mixed audiences in both large cities and small towns in the United States, Canada, Australia, Europe, Japan, and China. The major impact, along with a handful of other studies including those on New England, is to bring artists back into central focus in discussions of the creative economy.

Comparisons across Projects and with other Studies

Comparisons of results from these three projects demonstrate that differing cultural industrial and cultural occupational definitions produce different aggregate snapshots of the regional creative economy. These differences are much larger in the case of occupations than industries. The NEFA and AFTA conceptions and data sources for

the cultural industry workforce produce modestly different results for cultural industries. The New England project estimates Economic Census 2002 core cultural industry employment at 102,000 for the Boston metro, whereas AFTA's D&B estimates cultural industry employment to be 75,000 in 2004 and 73,000 in 2006 (Tables 1 & 2). The NEFA definition is more expansive than AFTA's, especially in its inclusion of many cultural goods production and distribution categories. The AFTA definition is conceptually nested within the NEFA one: Operationally, however, the D&B data employ the older SIC codes, whereas the NEFA project uses the newer NAICS system. Differences in data collection techniques and in years studied are additional possible sources of discrepancy.

In contrast, the cultural workforce estimates, computed using a single data source for a single year, are more disparate and demonstrate a rough nesting order. To the occupational estimates of the PRIE and NEFA projects described here, we have added the totals for Florida's (2002) creative class and super-creative core and the National Endowment for the Arts (NEA) definition of artists, all with 2000 Census PUMS data (see Table 4).⁶ These six definitions produce dramatically different totals for the U.S. creative workforce, from PRIE's low of 881,841 to Florida's 51.2 million. The Boston metro's creative class, in Florida's schema, amounts to nearly 885,000 workers, 49% of the workforce, whereas PRIE's artistic workforce accounts for just 14,600 workers, less than 1%.

[Table 4 about here]

Inclusivity of definition also affects creative density estimates. The New England core cultural workers, Florida's super-creative core, the NEA artists' metric and the PRIE

expanded cultural workforce definitions produce location quotients between 1.48 and 1.56, compared with 1.27 from Markusen and Schrock's artistic core definition and 1.29 from Florida's more expansive definition. Higher densities in the former groups' estimates of cultural workforce are pulled up by occupations outside of the artistic core. Designers and especially architects account for some of this effect in Boston (Markusen & Schrock, 2006). For policy makers, these comparisons underscore how critical are the choices among *creative* and *cultural* definitions. Very different targets and tools are suggested by each, a matter we return to in the last section.

Occupation by Industry

Neither the creative class work of Florida nor the NEFA and AFTA work on the cultural workforce attempts to look at the distribution of creative occupations by industry or the occupational compositions of cultural industries. Curiously, no researchers have used occupational density measures to identify cultural industries, the most common way of distinguishing high-tech industries (Chapple, Markusen, Schrock, Yamamoto, & Yu, 2004; Markusen, Hall, & Glasmeier, 1986). In many policy-oriented studies, the occupational composition of a regional industry is simply assumed to mirror that industry's occupational composition nationally, and worker demand projections are estimated accordingly. Yet metro occupation-by-industry distributions have been shown to diverge from national and state distributions, especially in key high-tech and business service industries (Barbour & Markusen, 2007). A cultural industry in one region may have a very different occupational structure from the same industry in another region. Regional cultural economies should thus be studied by examining the interrelationships between creative/cultural industries and occupations across regions. In this section, we

explore the *Population Census 2000* distribution of artistic occupations by industry for several metros, as well as the United States as a whole, and find marked differences.

Most researchers who rely on secondary data, including Florida, do not seem aware of the idiosyncrasies of occupation and industry typologies used by government and private data suppliers. All efforts to operationalize the cultural economy are forced to work with industrial and occupational categories that have been many decades in the making. In the United States, governments at the state and federal levels have been creating data sets for decades that permit quite detailed perusal of occupational and industrial employment at the state, metropolitan, and county levels. Until the 1940s, the Census Bureau did not classify occupations on the basis of what workers did but rather on the basis of industry, as in “forestry workers,” “bank workers.” Beginning in the 1940s, a detailed Standard Occupational Classification (SOC) was developed for the census to classify jobs more closely on the basis of what people did, that is, the nature of their work tasks rather than the product they produced. But it was not until 1999 that all federal statistical agencies—including the Occupational Employment Statistics program, BLS’s primary program to gather detailed data on occupational employment—began officially adopting the SOC system. According to the BLS (2001), “the SOC system ... incorporates structural features that free occupational classification from its previously industry-rooted structure,” although BLS statisticians acknowledge that the results were a compromise (Hecker et al., 2001).

An industry approach counts all workers in each industry, even if only a minority of workers is actually engaged in producing cultural content. This method will generate higher estimates of cultural employment than an occupational approach,

reflected in the Wassall and DeNatale (1997) creative economy work above. The advertising industry, for instance, which is arguably cultural but can also be purely informational, employs five times as many artists as does the economy as a whole (see Table 5). But even the broad definition of cultural workers accounts for only 10% of the advertising industry's workforce, the rest of which is composed of disproportionately large numbers of sales people, accountants, and managers. Nevertheless, advertising would most likely be classified as a cultural industry using a cultural occupation density measure.

[Insert Table 5 about here]

Which industries are the largest employers of cultural workers, and would the use of such a metric reproduce the set of cultural industries developed through researcher's ad hoc methods? A look at the distribution of Boston's artistic workforce by industry compared to that of the United States and two other major U.S. metros, Los Angeles and Chicago, is instructive (see Table 6). The table shows the shares of working artists in the top five artist-employing industries for each metro and the United States. These figures include self-employed artists, some of whom work on contract for a single industry and identify as such, whereas others assign themselves to the industry entitled "independent artists, performing arts and spectator sports and related."

[Insert Table 6 about here]

A number of industries that are not generally included in the list of cultural industries employ rather large concentrations of artists nationally: other professional, scientific, and technical services (20% of visual artists); religious organizations (33% of musicians); and colleges and universities (5% of performing artists, 4% of writers).

Others of note for some disciplines include specialized design services; restaurants; management; scientific and technical consulting services; and civic, social and advocacy organizations, including grantmaking. The figures demonstrate how important self-employment and the largely nonprofit performing arts and museums (unfortunately amalgamated in this data set) are for cultural workers.

The occupation-by-industry approach enables us to see the extent to which major metropolitan areas vary in their cultural specialization. Boston concentrates its performing artists in the radio and TV broadcasting sector, 42% compared to 28% nationally. Its visual artists work in the specialized design services industry at almost twice the national rate. Its prominent higher education sector accounts for much higher shares of musicians, writers, and performing artists than nationally. Its publishing and management services industries are also important cultural employers. In contrast, Los Angeles concentrates its visual artists and writers in the motion picture and video industry, 20% to 3% nationally. LA's sound recording industry is a large employer of musicians. Midcountry, Chicago's visual and performing artists and writers are much more heavily concentrated in advertising than in the nation or the other two metros, and its management services and publishing industries are also large employers of artists. This comparison is exploratory but demonstrates the virtues of using occupational screens to identify cultural industries. Given the regional variation, researchers might include different sets of industries in defining their regional cultural economies.

Economic Development Policy Implications

Our comparison of unique policy-oriented efforts to characterize and gauge the regional creative economy has implications for how state and local policy makers might

approach their own regions. First, they must take note of the menu of nested definitions of creative economy that they can use to circumscribe their targeted sectors and occupations. Second, with these, they can fashion a strategy that takes into account their existing strengths and deficits, keeping in mind competing regions and strategies that have worked elsewhere.

The need for definitional clarity has become increasingly acute as applications of the creative economy concept have become more widespread. Although the creative economy notion has focused welcome attention on connections between commercial, nonprofit, and individual creative enterprise, it has resulted in significant confusion when researchers and advocates use inconsistent definitions and measures. Without a shared framework in which to examine cultural economic processes and relationships, there is no way to evaluate the contentions of individual assessments or reliably inform the development of public policy.

We have shown in this article how three different recent research efforts have variously defined the cultural economy, using different variables, more or less inclusive definitions of industries and occupations, and different data sources. Other researchers have used broader definitions and yet other data sources—including Florida's creative class notion (2002) and Beyers's cultural industries work (2006). Each was designed with different constituencies and policy arenas in mind.

We have designed nested definitional sets of cultural industries and cultural occupations that can be used by any number of different constituencies—arts advocacy groups; trade associations; artists' service organizations; foundations and philanthropists; educators; and state and local governments' cultural affairs, economic development, and

workforce development agencies. With these, we have estimated cultural economy employment for the Boston metro and the United States, showing that the occupational definition is particularly sensitive to issues of inclusion. We have shown that there is no conceptual agreement on whether to include sports, gambling, religion, and education as culture, or whether to include forward (distribution and retailing) and backward (suppliers of equipment and services to the cultural industries) linkages in defining cultural industries.

Fortunately, researchers enjoy access to good secondary data on many aspects of the cultural economy, from multiple sources, over time and for geographic areas smaller than states and cities. We have reviewed a variety of data sources used to measure cultural economy employment, some of which also offer estimates of output, revenue, size, and numbers of firms, and employment status, incomes, and socioeconomic characteristics of workers by occupation. These include the Census of Population's PUMS dataset, the Economic Census, BLS Occupational Employment Statistics, County Business Patterns, IRS records, and D&B data. Some industries and occupations are still difficult to incorporate because of data problems, such as the inability to distinguish arts teachers from all teachers or automobile designers from all industrial designers.

Researchers and policy makers should be making much greater use of these options than they have to date. Currently, in the policy field, definitions used are often not reproducible. We have a responsibility to tease out the categories, state clearly what is and is not included in definitions of the cultural economy and why, and explain the strengths and weaknesses of data used. We hope to engage other researchers on these issues and work toward the kind of consensus that the tourism and information industries

have been able bring to their policy efforts, including engagements with the creators and maintainers of industry and occupational categories and data sets.

Policy makers should work from their perceptions of what is needed in their own regional economies. Examples might include more cultural amenities for existing residents and/or attracting skilled workers, firms, and tourists from elsewhere; downtown or district revitalization; and better education and training infrastructure to develop a creative workforce, including arts as well as science and technology offerings. If a city wants to improve the overall educational attainment level of its workforce, it might want to use a broader definition of creative industries and occupations in designing educational, recruitment, and retention strategies. If a city wants to use arts and cultural activities to revitalize underperforming neighborhoods or an eclipsed downtown, it might use a narrow definition of cultural occupations, such as artists, and of cultural industries, such as performing and visual arts establishments. If it desires to beef up its cultural amenities as a way of attracting and retaining skilled workers and firms, then it might want to use more expansive definitions of cultural industries, including, for instance, for-profit music clubs and successful film, publishing, and advertising firms, and of cultural occupations, including architects, designers, and media workers – but stay focused on cultural occupations and not all highly educated workers.

Currently, heightened interest in creative cities and cultural strategies is generating a remarkable array of experiments that are ripe for research and policy making comparison. Many cities and states are rushing into efforts—for example, Michigan’s cool cities initiative—without much reflection on unique circumstances, tools at hand, or resource constraints. Large performing arts centers and museums have been built or

expanded without thinking through capacity utilization, long-term operating support, and neighborhood and fiscal impacts. We look forward to a decade of progress in gauging, comparing, financing, and evaluating the creative economy in many jurisdictions and hope that many researchers and policy makers will participate in the effort.

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Table 1
Employment in Cultural Industries (2002) and the Cultural Workforce (2000): Boston Metro,
Massachusetts, New England, United States

	Boston	Massachusetts	New England	United States
Cultural industries employment	101,787	132,011	274,719	4,587,826
% of total employment	4.13	4.06	3.97	3.52
Location quotient	1.18	1.16	1.13	
Cultural workforce	72,343	109,314	225,750	3,660,082
% of total labor force	3.98	0.33	3.11	2.66
Location quotient	1.50	1.24	1.17	

SOURCE: Calculations by author Gregory Wassall. Cultural Industries employment estimated using Economic Census 2002 data. Cultural workforce estimated using 2000 Census of Population Public Use Microdata Sample. See Appendix Table A1 for industry codes and Table A2 for occupational codes.

Table 2
Arts-Related Businesses, Employment: Boston Metro, 2004-2006

Industry	Businesses	% Change	Employees	% Change
	2006	2004-2006	2006	2004-2006
Museums and collections	356	2.6	5,798	7.9
Performing arts	2,262	16.4	9,817	13.5
Visual arts/photography	4,664	33.9	16,134	22.1
Film, radio and TV	1,957	14.2	13,498	18.5
Design and publishing	3,850	28.0	23,644	32.4
Arts schools and services	688	5.0	4,112	5.6
Total	13,777		73,003	

SOURCE: Calculations by author Randy Cohen, based on January 2006 licensed proprietary data from Dun & Bradstreet.

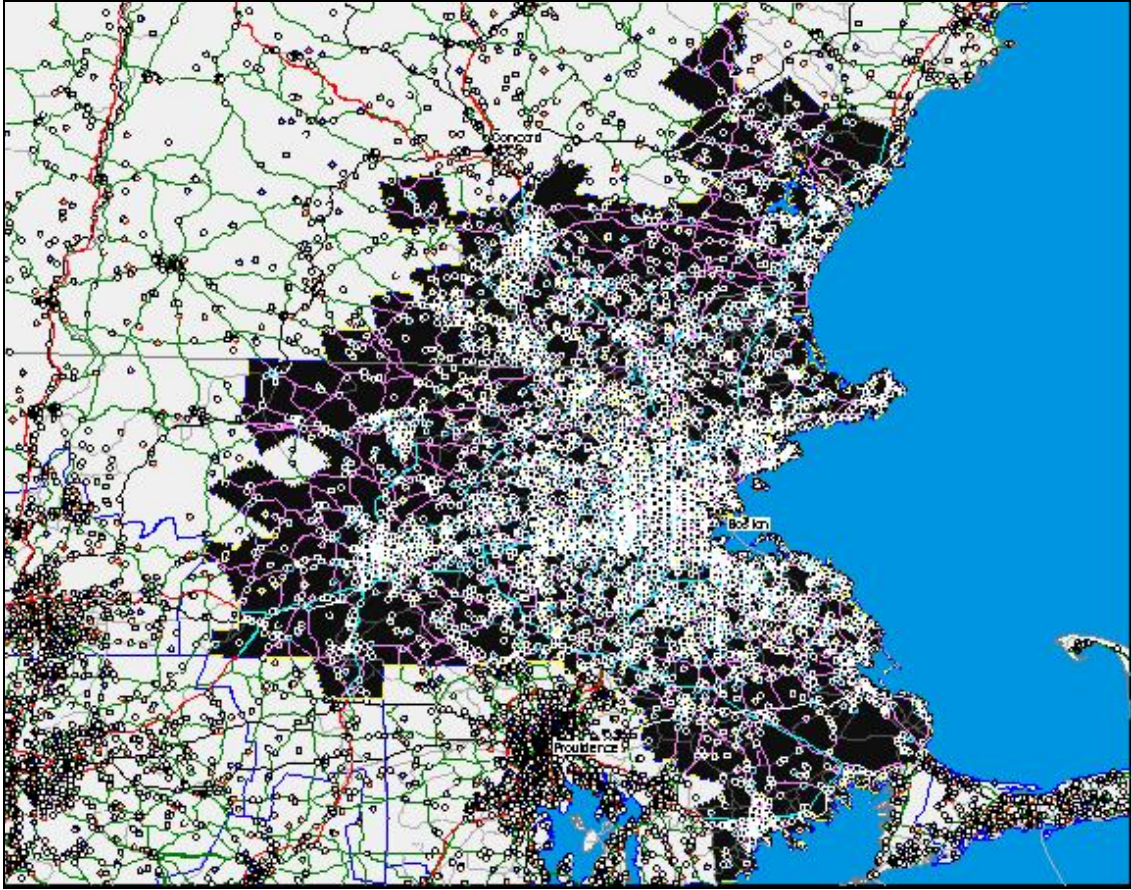


Figure 1. Boston Metro Distribution of Cultural Businesses.

Table 3

Employment, Arts and Cultural Occupations: United States, 2000

Artists: core cultural workers		843,269
	% of total employment	0.6%
Visual artists		
Artists and related workers		225,032
Photographers		117,424
Performing artists		
Actors		27,340
Producers and directors		134,393
Dancers and choreographers		23,939
Musicians, singers, and related workers		158,475
Writers and authors		156,666
Related cultural workers		1,534,871
	% of total employment	1.2%
Architects, except naval		193,757
Archivists, curators, and museum technicians		35,170
Designers		726,333
Entertainers and performers, sports and related workers, all others		34,369
Media and communications workers		
Announcers		52,317
News analysts, reporters, and correspondents		90,366
Editors		176,297
Technical writers		70,331
Miscellaneous media and communications workers		59,633
Broadcast and sound engineering technicians and radio operators		96,298
Artists and related cultural workers		2,378,140
	% of total employment	1.8%
Total U.S. employment		130,869,287

SOURCE: Calculations by author Ann Markusen, Greg Schrock, & Sara Thompson for Markusen Economic Research Services, based on Population Census PUMS data from Ruggles, Sobek, Fitch, Hall, & Ronnander (2003).

Table 4
Cultural Workforce-Creative Class Employment Comparisons: Boston, United States,
2000

	Boston	United States (millions, % of workforce)
Creative class (Florida)	884,475	52.1
% of total labor force	48.66	37.9
Location quotient	1.29	
Super creative core (Florida)	336,813	17.3
% of total labor force	18.53	12.6
Location quotient	1.48	
Cultural workforce (NEFA)	72,343	3.7
% of total labor force	3.98	2.66
Location quotient	1.5	
Artists and related cultural workers (PRIE)	50,890	2.4
% of total labor force	2.83	1.82
Location quotient	1.56	
Artists, architects and designers (NEA)	38,716	1.9
% of total labor force	2.13	1.40
Location quotient	1.52	
Artists (PRIE)	15,515	0.8
% of total labor force	0.84	0.64
Location quotient	1.27	

SOURCE: Tabulations by authors from the 2000 Census Public Use Sample (Ruggles, Sobek, Fitch, Hall, & Ronnander, 2003). See text and appendix for definitions of occupations included.

Table 5
Cultural Workers in the Advertising Industry: United States, 2002

Occupational Title	Employment	% total
Graphic designers	18,340	4.17
Art directors	8,150	1.85
Writers and authors	5,850	1.33
Multi-media artists and animators	4,940	1.12
Merchandise displayers and window trimmers	3,200	0.73
Producers and directors	2,540	0.58
Fine artists, including painters, sculptors, illustrators	570	0.13
Commercial and industrial designers	560	0.13
Set and exhibit designers	180	0.04
Interior designers	30	0.01
Actors	50	0.01
Total, core cultural workers (artists)	22,100	5.03
Total, cultural occupations in advertising ^a	44,110	10.10
Total employment, all occupations	439,700	100

SOURCE: Calculations by author Ann Markusen, Greg Schrock & Sara Thompson for Markusen Economic Research Services, based on Bureau of Labor Statistics (2002).

^aAdvertising is defined as NAICS Code 5418.

Table 6

Employed artists, top five industries: Los Angeles, Chicago, Boston Metro, United States, 2000
 % of occupational employment

	Boston	Chicago	Los Angeles	United States
Visual artists				
Independent artists, performing arts, spectator sports	25.5	17.9	24.0	27.1
Other professional, scientific and technical services	20.1	19.1	13.9	19.6
Specialized design services	11.7	7.3	6.1	6.0
Advertising services	4.9	16.0	4.2	5.1
Newspaper publishers	4.5			3.9
Motion pictures and video industries			19.6	2.7
Management, scientific, technical consulting services		3.0		0.4
Performing artists				
Radio and television broadcasting and cable	41.5	19.1	15.6	27.5
Independent artists, performing arts, spectator sports	14.5	24.2	22.5	21.3
Motion pictures and video industries	11.4	20.4	48.7	20.0
Colleges and universities, including junior colleges	6.2			4.6
Advertising services	5.2	9.6	1.3	3.2
Employment services			3.5	0.7
Computer systems design services		2.7		0.4
Musicians and composers				
Independent artists, performing arts, spectator sports	51.2	46.5	64.9	46.8
Religious organizations	28.7	31.9	9.8	32.5
Restaurants and other food services	3.0	4.4	3.8	3.2
Sound recording industries		2.9	7.2	2.7
Elementary and secondary schools	2.6	2.3		1.6
Colleges and universities, including junior colleges	3.4			0.9
Motion pictures and video industries			2.7	0.9
Writers and authors				
Independent artists, performing arts, spectator sports	23.6	30.9	45.3	35.8
Advertising services	12.1	15.5	4.1	9.5
Publishing, except newspapers and software	14.0	11.1	6.1	7.9
Newspaper publishers		3.5		7.5
Colleges and universities, including junior colleges	6.8			3.6
Motion pictures and video industries			20.0	3.1
Radio and television broadcasting and cable			6.6	3.0
Management, scientific, technical consulting services	8.6			2.3
Civic, social, advocacy organizations, grantmaking		4.2		1.9

SOURCE: Calculations by author Ann Markusen, Greg Schrock, & Sara Thompson for Markusen Economic Research Services, based on Population Census PUMS data from Ruggles, Sobek, Fitch, Hall, & Ronnander (2003).

APPENDIX

Table A1

New England Cultural Industries--North American Industry Classification System
(NAICS) Categories Included In Core Component

NAICS	Industry
Group 1	Cultural goods production
323110	Commercial lithographic printing
323111	Commercial gravure printing
323112	Commercial flexographic printing
323113	Commercial screen printing
323115	Digital printing
323117	Book printing
323119	Other commercial printing
323121	Tradebinding and related work
323122	Prepress services
325992	Photographic film, paper, plate, and chemical manufacturing
327112	Vitreous china, fine earthenware, and other pottery product manufacturing
327212	Other pressed and blown glass and glassware manufacturing
332323	Ornamental and architectural metal work manufacturing
333293	Printing machinery and equipment manufacturing
334310	Audio and video equipment manufacturing
334612	Prerecorded compact disc (except software), tape, and record reproducing
337212	Custom architectural woodwork and millwork manufacturing
339911	Jewelry (except costume) manufacturing
339912	Silverware and hollowware manufacturing
339913	Jewelers' material and lapidary work manufacturing
339914	Costume jewelry and novelty manufacturing
339942	Lead pencil and art good manufacturing
339992	Musical instrument manufacturing
Group 2	Cultural goods distribution
423410	Photographic equipment and supplies merchant wholesalers
423940	Jewelry, watch, precious stone, and precious metal merchant wholesalers
424110	Printing and writing paper merchant wholesalers
424920	Book, periodical, and newspaper merchant wholesalers
443112	Radio, television, and other electronics stores
443130	Camera and photographic supplies stores

448310	Jewelry stores
451130	Sewing, needlework, and piece goods stores
451140	Musical instrument and supplies stores
451211	Book stores
451220	Prerecorded tape, compact disc, and record stores
453920	Art dealers
812921	Photofinishing laboratories (except one-hour)
812922	One-hour photofinishing

Group 3	Intellectual property production & distribution
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511110	Newspaper publishers
511120	Periodical publishers
511130	Book publishers
511191	Greeting card publishers
511199	All other publishers
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
512210	Record production
512220	Integrated record production/distribution
512230	Music publishers
512240	Sound recording studios
512290	Other sound recording industries
515111	Radio networks
515112	Radio stations
515120	Television broadcasting
515210	Cable and other subscription programming
516110	Internet publishing and broadcasting
517510	Cable and other program distribution
519110	News syndicates
519120	Libraries and archives
532230	Video tape and disc rental
541310	Architectural services
541320	Landscape architectural services
541340	Drafting services
541410	Interior design services
541420	Industrial design services
541430	Graphic design services

541490	Other specialized design services
541810	Advertising agencies
541830	Media buying agencies
541840	Media representatives
541850	Display advertising
541921	Photography studios, portrait
541922	Commercial photography
711110	Theater companies and dinner theaters
711120	Dance companies
711130	Musical groups and artists
711190	Other performing arts companies
711510	Independent artists, writers, and performers

Group 4	Educational services
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611610	Fine arts schools
712110	Museums
712120	Historical sites
712130	Zoos and botanical gardens
712190	Nature parks and other similar institutions

SOURCE: DeNatale, D., and Wassall, G.H. (2006). *Creative economy research in New England: A reexamination*. Boston: New England Foundation for the Arts.

Table A2
New England Cultural Workforce: Standard Occupational Classification (SOC) and Census
Occupational Codes (COC) included in Core Definition

SOC	COC	Occupation
11-2011	0040	Advertising and promotions managers
11-2031	0060	Public relations managers
17-1011	1300	Architects, except landscape and naval
17-1012	1300	Landscape architects
17-3011	[Part of 1540]	Architectural and civil drafters
19-3091	[Part of 1860]	Anthropologists and archeologists
19-3093	[Part of 1860]	Historians
25-1031	[Part of 2200]	Architecture teachers, postsecondary
25-1061	[Part of 2200]	Anthropology and archeology teachers, postsecondary
25-1062	[Part of 2200]	Area, ethnic, and cultural studies teachers, postsecondary
25-1082	[Part of 2200]	Library science teachers, postsecondary
25-1121	[Part of 2200]	Art, drama, and music teachers, postsecondary
25-1122	[Part of 2200]	Communications teachers, postsecondary
25-1123	[Part of 2200]	English language and literature teachers, postsecondary
25-1124	[Part of 2200]	Foreign language and literature teachers, postsecondary
25-1125	[Part of 2200]	History teachers, postsecondary
25-4011	2400	Archivists
25-4012	2400	Curators
25-4013	2400	Museum technicians and conservators
25-4021	2430	Librarians
25-4031	2440	Library technicians
25-9011	[Part of 2550]	Audio-visual collections specialists
27-1011	2600	Art directors
27-1012	2600	Craft artists
27-1013	2600	Fine artists, including painters, sculptors, and illustrators
27-1014	2600	Multi-media artists and animators
27-1019	2600	Artists and related workers, all other
27-1021	2630	Commercial and industrial designers
27-1022	2630	Fashion designers
27-1023	2630	Floral designers
27-1024	2630	Graphic designers
27-1025	2630	Interior designers
27-1026	2630	Merchandise displayers and window trimmers
27-1027	2630	Set and exhibit designers
27-1029	2630	Designers, all other
27-2011	2700	Actors
27-2012	2710	Producers and directors
27-2031	2740	Dancers
27-2032	2740	Choreographers
27-2041	2750	Music directors and composers
27-2042	2750	Musicians and singers
27-3011	2800	Radio and television announcers
27-3012	2800	Public address system and other announcers
27-3021	2810	Broadcast news analysts
27-3022	2810	Reporters and correspondents
27-3031	2820	Public relations specialists
27-3041	2830	Editors
27-3042	2840	Technical writers
27-3043	2850	Writers and authors
27-3099	2860	Media and communication workers, all other
27-4011	2900	Audio and video equipment technicians
27-4012	2900	Broadcast technicians
27-4013	2900	Radio operators
27-4014	2900	Sound engineering technicians
27-4021	2910	Photographers
27-4031	2920	Camera operators, television, video, and motion picture
27-4032	2920	Film and video editors
27-4099	2960	Media and communication equipment workers, all other
39-3021	4410	Motion picture projectionists
39-3092	[Part of 4430]	Costume attendants
39-5091	[Part of 4520]	Makeup artists, theatrical and performance
41-3011	4800	Advertising sales agents
43-4121	5320	Library assistants, clerical
43-9031	5830	Desktop publishers
49-2097	7120	Electronic home entertainment equipment installers and repairers
49-9061	[Part of 7430]	Camera and photographic equipment repairers
49-9063	[Part of 7430]	Musical instrument repairers and tuners
49-9064	[Part of 7430]	Watch repairers
51-5011	8230	Bindery workers
51-5012	8230	Bookbinders
51-9071	8750	Jewelers and precious stone and metal workers
51-9123	[Part of 8810]	Painting, coating, and decorating workers
51-9131	8830	Photographic process workers
51-9132	8830	Photographic processing machine operators

SOURCE: DeNatale, D., and Wassall, G.H. (2006). *Creative economy research in New England: A reexamination*. Boston: New England Foundation for the Arts.

1. The Boston Symphony Orchestra, one of the largest nonprofit cultural organizations in the region, brought a study of the economic impact of the region's cultural nonprofits (Wassall & DeNatale, 1997) to the attention of the New England Council, a regional business advocacy organization. At a 1998 regional conference sponsored by the New England Council, leaders agreed to extend the scope of that research into the for-profit portion of the cultural sector and commissioned Mt. Auburn Associates, an economic development consulting firm, to write the study, funded by the New England Foundation for the Arts. Mt. Auburn reported on the size of the creative cluster and creative workforce, using employment as a metric and data drawn from the 1997 Census of Manufactures and the 1996 Current Population Survey.

2. Because the nature of cultural activities varies across regions, a case can be made for counting the cultural portion of a peripheral industry or occupation in a particular region, provided that a defensible methodology can establish the local percentage of cultural industries or workers and that this number can be separated from that reported for the core industries and workforce. One example is the recent report by Mt. Auburn Associates (2005) that includes restaurants as producing a cultural product in New Orleans.

3. The Economic Census is to *County Business Patterns* used in Beyers (2006) as the Decennial Census of Population is to the Current Population Survey—greater accuracy and detail but less timely. Among things of interest to us, but not necessarily in this article, is the availability of a for-profit vs. nonprofit breakdown plus data on payroll

and value added, found only in the Economic Census. The Economic Census, like County Business Patterns, does not survey public employers.

4. Widely acknowledged as the most comprehensive source for business information, Dun & Bradstreet is recognized by both global industry associations and the U.S. federal government and claims to cover 94% of active U.S. businesses (they also have a database of inactive businesses). As of January 2006, D&B's database included 12.8 million active businesses employing 132 million people. The federal government and many state governments now require all contractors and grantees to have a D&B data universal numbering system (DUNS) number.

5. We could not include arts administrators or arts teachers because since 2000, the Population Census does not break them out from larger aggregations of administrators and teachers. We included only employed artists, not those unemployed, to probe income, sector of employment (private, nonprofit, public, self-employment), and industry patterns that would be confused by including the unemployed.

6. Florida's (2002) creative class consists of all managerial and professional occupations (using Census Standard Occupational Classification [SOC]), whereas his super-creative core "is made up of people who work in science and engineering, computers and mathematics, education, and the arts, design, and entertainment, people who work in directly creative activity" (p. 74). The super-creative core includes 61 occupations in mathematics, engineering, physical and social sciences, and education that lie outside the New England Foundation for the Arts's (NEFA) cultural workforce concept. Two NEFA cultural workforce occupations lie outside of Florida's super-creative core, and only one lies outside Florida's creative class. The NEFA definitions of

cultural workforce are nested within these. The National Endowment for the Arts (NEA) defines 11 occupation categories as artistic, all of which are among the 31 in NEFA's core cultural workforce. The PRIE expanded artists and related cultural workforce (including in this case the unemployed) is nested within the NEFA definition, while PRIE's artistic occupations are nested within the NEA grouping.