

# **The Creative Industry in Hawaii\***

**April 2007**

**Research and Economic Analysis Division  
Department of Business, Economic Development & Tourism  
State of Hawaii**

---

\* This report was prepared by Drs. Binsheng Li and Khem Sharma of Economic/Econometric Research Branch under the guidance of Division Head, Dr. Pearl Imada Iboshi. The authors would like to thank Steve Lee, Tracie Young, and David Nada of DBEDT's Arts, Film and Entertainment Division for their valuable input and background information for the report.

# The Creative Industry in Hawaii

## I. Introduction

According to the encyclopedia, creative industries (or sometimes creative economy) refer to a set of interlocking industry sectors, and they are often cited as being a growing part of the global economy. The creative industries are commonly defined as those sectors that focus on creating and exploiting intellectual property products, such as the arts, films, games or fashion designs, or providing business-to-business creative services such as advertising.

The importance of the creative industry to the overall economy is well documented.<sup>1</sup> As the world is moving from the production-centric economy to the information-centric economy, the growing power of ideas is increasingly recognized by businesses as well as governments. It was widely recognized that the more an economy relies on ideas rather than on physical capital, the greater the potential for breakaway successes. Ideas can spread across a huge population almost overnight and the marginal cost of making copies of productive ideas is close to zero. Businesses are able to generate substantial revenues and profits using a small base of assets and a few creative employees. In the 21<sup>st</sup> century, the power, prestige, and capital will flow to the companies with indispensable intellectual property. Although productive new ideas can be generated from people in any occupation and industry, people in certain occupations and industries are more likely to create them than those in others. In addition, recent economic development research has found that the presence of arts-centric organizations in a region tends to drive economic growth.<sup>2</sup> It is because the arts-centric organizations provide cultural amenities that make a region more attractive to well educated people, who are more likely to create new ideas and productive intellectual properties. The indirect positive effect of an arts-centric environment on the regional economy has been documented in several studies.<sup>3</sup>

The demarcation of the creative economy or industries differs from country to country or even from state to state in the United States. The differences are due to the specific definitions of the creative economy used and the data availability. This report relates to defining and measuring the creative economy in Hawaii.

This report examines only the direct economic activity generated by the creative economy in Hawaii. The total jobs, output, and earnings in the creative economy are estimated for the state as well as for each of the four counties. It should be noted, however, that the total economic impacts of the creative economy should be much greater than what is reported in this report because the indirect positive impact of the creative economy on rest of the economy is not included in this report. Moreover, since the definition of the creative economy is different from state to state, also this report does not compare the relative size of the creative economy in Hawaii with that in other states in the U.S.

---

<sup>1</sup> Source: Peter Coy, Business Week Online: August 28, 2000 Issue: "The Creative Economy."

<sup>2</sup> Source: Lucia DeMaio, Missouri Economic Research & Information Center, "Creativity and the Economy – An Assessment of the Economic Impact of Missouri's Creative Industries" November 2004

<sup>3</sup> Source: Florida, Richard, "The Rise of the Creative Class." New York: Basic Books 2002.

## II. Defining Creative Industries

### The UK DCMS Definition

According to the UK Department for Culture, Media and Sport (DCMS), the creative industries are defined as those industries which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property. The DCMS creative industries consist of the following sectors:

- Advertising
- Broadcast network talent
- Design
  - Architectural Design
  - Communication Design
  - Designer Fashion
- Editorial Commentary Journalism
- Film and Video Industry
- Fine Art Illustration
- Game Development
- Handicraft
  - Antiques Restoration Market
- Music Industry
- Performing Arts
- Publishing
- Software Development and Computer Services

Although many other nations have adopted the DCMS definition of the creative economy, its criticisms abound. It has been argued that differences between lifestyle business, non-profits, and larger businesses, and between those who receive state subsidies (e.g., film) and those who do not (e.g., computer games) are obscured in the DCMS definition. The inclusion of the antiques trade is often questioned, since it does not generally involve production. The inclusion of all computer services has also been questioned. Some have suggested for a distinction between those industries that are open to mass production and distribution (e.g., film and video; videogames; broadcasting; publishing), and those that are primarily craft-based and are meant to be consumed in a particular place and moment (e.g., visual arts; performing arts; cultural heritage).<sup>4</sup>

### The Americans for the Arts Definition

A leading nonprofit organization for the advancement of the arts in America, Americans for the Arts (AFA) has a different definition of creative industries.<sup>5</sup> The AFA definition of creative industries includes the following six sectors:

---

<sup>4</sup> Source: Wikipedia, the free encyclopedia ([http://en.wikipedia.org/wiki/creative\\_industries](http://en.wikipedia.org/wiki/creative_industries)).

<sup>5</sup> For more information about Americans for the Arts, please go to its Web site: [www.AmericansForTheArts.org](http://www.AmericansForTheArts.org).

- Museums and Collections
- Performing Arts
- Visual Arts & Photography
- Film, Radio, and TV
- Design and Publishing
- Arts Schools & Services

The AFA definition is based on the Standard Industrial Classification (SIC) system.<sup>6</sup> In the U.S., however, most of the recent industry level data are classified using the North American Industrial Classification System (NAICS).

## **The New England Definition**

In a study conducted by the New England Council,<sup>7</sup> the creative economy was defined to include three key components: (1) the creative clusters, (2) the creative workforce, and (3) the creative community. The creative cluster is defined as those enterprises and individuals that directly and indirectly produce cultural products. In the New England Study, the creative clusters include the following product lines:

### Applied Arts

- Architectural Services
- Interior Design Services
- Industrial Design Services
- Graphic Design Services
- Other Specialized Design Services
- Advertising Agencies
- Display Advertising
- Photographic Services – Commercial

### Performing Arts: Music, Theater, Dance

- Theater Companies and Dinner Theaters – Commercial
- Dance Companies – Commercial
- Musical Groups and Artists – Commercial
- Other Performing Arts Companies – Commercial
- Musical Instrument and Supplies Stores – Commercial
- Musical Instrument Manufacturing – Commercial
- Promoters of Performing Arts – Commercial
- Nonprofit Performing Arts

### Visual Arts

- Art Dealers – Commercial
- Nonprofit Visual Arts

---

<sup>6</sup> Source: Americans for the Arts, “Creative Industries 2005 – The Congressional Report” March 2005.

<sup>7</sup> Source: The New England Council, “The Creative Economy Initiative – The Role of the Arts and Culture in New England’s Economic Competitiveness.” June 2000.

- Camera and Photographic Supplies Stores – Commercial
- Agents and Managers for Artists – Commercial
- Photographic Film, Paper, Plate, and Chemical Manufacturing – Commercial
- Lead Pencil and Art Good Manufacturing – Commercial
- Art Print Gravure Printing – Commercial

#### Literary Arts

- Book Publishers – Commercial
- Libraries and Humanities – Nonprofit

#### Media

- Cable and Other Program Distribution – Nonprofit Media
- Motion Picture and Sound Recording Industries – Commercial
- Prerecorded Compact Disk, Tape, and Record Reproducing – Commercial

#### Heritage

- Museums – Taxable
- Nonprofit Ethnic, Historical, Museums
- Historical Sites – Taxable

#### Support

- Fine Arts Schools
- Nonprofit Support and Education
- Independent Artists, Writers, and Performers – Incorporated
- Independent Artists, Writers, and Performers – Unincorporated

The creative workforce includes the artists, performers and other professionals who may or not be directly employed by cultural organizations, yet are involved in creative work within a particular industry. The creative workforce includes the following Occupations:

#### Performing Arts

- Actors & Directors
- Announcers
- Authors
- Musicians & Composers
- Artists, Performers, Dancers etc., n.e.c.

#### Craft and Visual Arts

- Cabinet makers and Bench Carpenters
- Hand Painters, Coaters, and Decorators
- Painters, Sculptors, Craft-Artists, etc.
- Photographers

#### Professional Service

- Architects
- Archivists & Curators
- Designers

## Art Education

- College Art, Drama & Music Teachers
- Elementary & Secondary Art, Drama & Music Teachers

The creative community is defined as the geographic locations where quality of life is directly connected to higher concentrations of creative workers and creative industries.

In the New England Study, the share of creative employment in total state employment was estimated separately using total employment in creative cluster and total creative workers in the creative occupations. The employment in creative cluster (including both creative workers and non-creative workers) and creative workers were not added to obtain total creative employment. In addition, the industry classification in the New England Study was based on product lines rather than NAICS Codes.

## **The Missouri Definition**

An alternative definition of the creative industries has been adopted by Missouri, the United States. According to a report prepared by the Missouri Economic Research & Information Center (DeMaio 2004), creative industries are defined as those businesses and non-profit organizations that employ a significant number of arts workers. Each industry's reliance on the arts is calculated by comparing average employment of arts, sports, and media occupations across industries and selecting those industries that have significantly higher than average reliance on these occupations. Specifically, the Missouri definition includes eighteen creative industries under four broad creative sectors. Industries are classified using the four-digit NAICS codes. The four broad creative sectors are: (1) Media and Information Services, (2) Fine Arts, (3) Professional Design Services, and (4) Commercial Arts and Sports. The 18 industries are as follows:

### Media and Information Services

- Motion Picture and Video Industries (NAICS 5121)
- Sound Recording Industries (NAICS 5122)
- Radio and Television Broadcasting (NAICS 5151)
- Newspaper, Periodical, Book, and Directory Publishers (NAICS 5111)
- Internet Publishing and Broadcasting (NAICS 5161)
- Other Information Services (NAICS 5191)
- Manufacturing and Reproducing Magnetic and Optical Media (NAICS 3346)

### Fine Arts

- Independent Artists, Writers, and Performers (NAICS 7115)
- Performing Arts Companies (NAICS 7111)
- Schools and Instruction (NAICS 6116)

### Professional Design Services

- Specialized Design Services (NAICS 5414)
- Advertising and Related Services (NAICS 5418)
- Florists (NAICS 4531)
- Other Professional, Scientific, and Technical Services (NAICS 5419)

- Commercial and Industrial Machinery and Equipment Rental and Leasing (NAICS 5324)

#### Commercial Arts and Sports

- Promoters of Performing Arts, Sports, and Similar Events (NAICS 7113)
- Spectator Sports (NAICS 7112)

The advantage of the Missouri definition over the DCMS and AFA definitions is that the former is based on the NAICS. It should be noted, however, that the Missouri creative industries listed above were selected based on the average number of arts, media, and sports related workers in Missouri. These industries may not employ more arts, media, and sports related workers than the state average in other states. For example, the Commercial and Industrial Machinery and Equipment Rental and Leasing industry may not employ a significant number of creative workers in Hawaii, and therefore it should not be included in the creative industries in Hawaii according to the Missouri definition.

A common problem of both the Missouri definition and the DCMS definition is that the creative economy is assumed to include only the selected group of creative industries. The non-creative industries may also employ a significant number of creative workers. Ignoring the impacts of the creative workers in non-creative industries could significantly underestimate the total impacts of the creative industries on the economy. The New England study examined the impacts of the creative industries and the impacts of creative workers separately, but it did not combine the two impacts to estimate the total impact of the creative economy, perhaps because of double counting. These limitations have been overcome in this study by accounting for the impacts of creative industries, as well as the impacts of creative activities in non-creative industries without double counting.

### **The Hawaii Definition**

In this report, the impacts of the creative industries are estimated first by estimating the total number of “creative” jobs and then estimating the output and earnings generated by these creative jobs. The “creative” jobs include *all* jobs in a series of industries defined as “creative,” plus jobs in a series of creative *occupations* in other industries. The creative occupations in non-creative industries are included separately on the assumption that these industries have some creative activity, but the entire industry cannot be considered creative. Creative jobs include both wage and salary jobs and proprietors’ or the self-employed. The “output” of the creative sectors is the total sales generated by all these sectors. For non-creative industries with creative jobs, the share of wages of the employees in creative occupations to total wages in those industries was used to determine creative sector output. Creative “earnings” are the income earned by the creative workers.

### ***Creative Industries in Hawaii***

In this report, the following five industries in the three-digit NAICS were defined as *creative industries*:

1. Motion picture and sound recording industries (NAICS 512)
2. Performing arts, spectator sports, and related industries (NAICS 711)
3. Museums, historical sites, and similar institution (NAICS 712)
4. Broadcasting (NAICS 515)

## 5. Publishing (NAICS 511 and 516)

A comparison between the Hawaii definition and the Missouri definition reveals that all the industries in the Missouri Commercial Arts and Sports sub-sector and most of the industries in the Media and Information services sub-sector and the Fine Arts sub-sector are included in the Hawaii creative industries. The three creative industries included in the Missouri Media and Information services sub-sector and the Fine Arts sub-sector but excluded from the Hawaii creative industries are: (1) Other Information Services (NAICS 5191), (2) Manufacturing and Reproducing Magnetic and Optical Media (NAICS 3346), and (3) Schools and Instruction (NAICS 6116). For the Professional Design Services sub-sector; however, none of creative industries in the Missouri definition are included in the Hawaii creative industries.

The Hawaii definition of creative industries also includes some industries not included in the Missouri definition. Specifically, the Museums, Historical Sites, and Similar Institution (NAICS 712), the Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures (NAICS 7114), the Cable and Other Subscription Programming (NAICS 5152), and Software Publishers (NAICS 5112) are included in the Hawaii creative industries but excluded from the Missouri creative industries.

The Hawaii definition also differs from the New England definition. First, in the former creative industries are based NAICS codes, while in the latter the industry clusters are based product lines. Second, there seems to be a considerable overlap between the creative industries and creative workforce in the New England definition, but such an overlap is removed in the Hawaii definition.

### ***Creative Occupations in Hawaii***

In this report, the following 10 occupations were defined as *creative occupations*:

1. Advertising and promotions managers
2. Computer software engineers, applications
3. Architects, except landscape and naval
4. Landscape architects (estimated)
5. Librarians, curators, and archivists
6. Art and design workers
7. Entertainers and performers, spectator sports and related
8. Chefs and head cooks
9. Entertainment attendants and related workers
10. Desktop publishers

## **III. Number of Establishments in Creative Industries**

Based on published data, Hawaii's five creative industries had 634 payroll establishments statewide (employers) in 2004 (Table 1).<sup>8</sup> Performing Arts, Spectator Sports, and Related industries accounted for nearly 34 percent of total creative payroll establishments, followed by Motion Picture and Sound Recording at 26 percent, and Publishing at nearly 24 percent.

---

<sup>8</sup> This information for all creative industries is either not available or not disclosed by county.



Besides payroll establishments, there were 4,500 non-payroll creative establishments (known as “non-employers”, “self-employed”, or “proprietors”). Of this, nearly 87 percent were in Performing Arts, Spectator Sports, and Related industries.

It should be noted, however, that these numbers do not include the establishments in other industries with some workers engaged in creative activities.

### 1. Table Number of Establishments in Creative Industries

	Employers			Non-employers
	2002		2004	2004 <sup>3</sup>
	Census <sup>1</sup>	DLIR <sup>2</sup>	DLIR <sup>2</sup>	Census <sup>1</sup>
Motion picture and sound recording	126	176	166	332
Performing arts, spectator sports, and related	132	195	214	3921
Museums, historical sites, and similar institution	67	56	53	17
Broadcasting (excl. internet broadcasting)	44	56	52	52
Publishing (inc. internet publishing and broadcasting)	110	153	149	179
<b>Total</b>	<b>479</b>	<b>636</b>	<b>634</b>	<b>4,501</b>

1. 2002 Economic Census, U.S. Census Bureau.

2. Employment and Wages (QCEW) Data, Hawaii Department of Labor and Industrial Relations.

3. Based on Non-employer Statistics from the 2002 Economic Census, U.S. Census Bureau.

## IV. Estimation of Creative Jobs

The estimation of creative jobs was based on two major sources of data: (1) the DLIR jobs by industry and jobs by occupation data, and (2) the Bureau of Economic Analysis (BEA), U.S. Department of Commerce data on total jobs (including self employed) and wage and salary (W&S) jobs by industry.

### Data Sources

As indicated earlier, total creative jobs include W&S jobs and proprietors’ jobs that are engaged in creative activities. The creative W&S jobs are estimated based on DLIR’s job statistics while the creative proprietors’ jobs are estimated based on the BEA data. The following data are available from the DLIR Web site and the BEA Web site:

1. **Job Counts by Industry from the DLIR Current Employment Statistics (CES).** The CES data are obtained from surveys of employers. This source provides annual W&S jobs data by industry and by county up to 2006. Monthly job data are also available, but the monthly data contain a less detailed industry breakdown. Creative jobs in the monthly data are limited to only two industry categories, namely Information and Arts, entertainments and recreation, and hence need to be allocated to the five creative industries.
2. **Covered W&S Jobs or ES202 Data (Covered by Hawaii Employment Security Law and Unemployment Compensation for Federal Employees by Industry).** The latest ES202 data from DLIR include detailed industry level data by county for calendar years up to 2005. W&S jobs for the creative industries can be obtained directly from the ES202 data. However,

compared with the BEA data, the ES202 data account for fewer total job counts for three reasons. First, the W&S jobs in the ES202 data are limited to covered W&S jobs. Second, military jobs are not included in the ES202 data. Third, proprietors' or self-employed jobs are also not included in the ES202 data. According to ES202 data, total W&S jobs for the state in 2004 were 585,292 as compared to 663,442 (and 609,684 excluding military jobs) W&S jobs and 808,520 (and 754,762 excluding military jobs) total jobs (including proprietors' or self-employed jobs) from BEA. The coverage of the ES202 data is much closer to that of the CES data. In 2005, the CES data showed a total of 602,050 W&S jobs for the state, while the ES202 showed a total of 603,663 W&S jobs..

3. **The Occupations by Industry Matrix.** Detailed W&S jobs both by occupation and by industry for the state are available from the DLIR Web site for 2005. Similar data at the county level are only available for 2002. The state occupation by industry matrix showed a total of 608,780 W&S jobs in the state in 2005.
4. **BEA W&S and Total Jobs Data.** The BEA provides detailed NAICS industry level W&S and total jobs for the state up to 2004.<sup>9</sup> Both W&S jobs and total jobs for the five creative industries for the state can be estimated from the BEA detailed industry level data. At the county level, less detailed industry level (by 2-digit NAICS) total jobs data are available for 2004. The county level W&S jobs by detailed industry are available only up to 2002. Therefore, the 2004 total jobs and W&S jobs for the five creative industries for the counties need to be estimated based on other information.

## **Estimation Procedures**

Estimating creative jobs involved three components: (1) estimating the number of jobs engaged in the ten creative *occupations*; (2) estimating the number of jobs in the five creative *industries*, and (3) estimating the number of overlapped jobs between creative occupations and creative industries that needed to be subtracted to avoid double counting. The estimation was done in two stages: (i) the estimation of wage and salary (W&S) jobs, and (ii) the estimation of proprietor or self-employed jobs.

Total creative W&S jobs in the state were estimated based on the W&S data from the 2005 DLIR *Occupations-by-Industry Matrix*. This information shows the occupational mix for each industry. The number of W&S jobs engaged in the creative occupations was obtained by sorting the data by occupation, while W&S jobs in the creative industries were obtained by sorting the same data by industry. Accordingly, as shown in Table 1, W&S jobs engaged in the ten creative occupations in the state totaled 11,480 in 2005 and W&S jobs in the five creative industries totaled 9,489. The number of overlapped W&S jobs between the creative industries and creative occupations was estimated by identifying the creative occupations in the creative industries. The five creative industries included 2,485 jobs in the creative occupations, which were subtracted out to avoid double counting.

To estimate the creative W&S jobs for the counties, the total W&S jobs in the creative occupations, the total W&S jobs in the creative industries, and the total overlapped W&S jobs between the creative industries and creative occupations for the state were allocated to counties based on counties' shares in each item. For the W&S jobs in the creative occupations, the counties' shares were estimated based on the 2002 DLIR Occupations by Industry Matrix by county. For the W&S jobs in the creative industries, the counties' shares were estimated based on the 2005 ES202 W&S jobs by

---

<sup>9</sup> Detailed 2005 BEA W&S jobs by industry are not available yet. Only total W&S jobs are available now.

county. The overlapped W&S jobs between the creative industries and creative occupations were allocated to counties based on their respective shares in total W&S jobs in the five creative industries in 2005.

Total creative W&S jobs was estimated by summing the W&S jobs in the creative occupations and those in the creative industries and subtracting out the overlapped W&S jobs (i.e., jobs in the creative industries already included in the creative occupations).

## **Creative Jobs**

As shown in Table 2, in 2005, the total number of creative W&S jobs was estimated to be 18,484 for the state, which accounted for 3.1 percent of total covered W&S jobs for the state for that year. By county, total creative W&S jobs were estimated to be 13,805 (3.1 percent of total covered W&S jobs) in Honolulu, 2,284 (3.4 percent) in Maui, 1,523 (2.5 percent) in Hawaii County, and 872 (3.0 percent) in Kauai.

Of total creative W&S jobs, Honolulu accounted for the most (69.1 percent), followed by Maui (15.8 percent), Hawaii County (10.4 percent), and Kauai (4.7 percent).

The proprietors' jobs in the five creative industries for the state as well as counties were estimated based on the 2004 BEA employment data by industry. The proprietors' jobs in creative industries were calculated as total jobs minus W&S jobs in the five creative industries. The growth rate of total BEA W&S jobs between 2004 and 2005 was used to estimate the 2005 proprietors' jobs.

As shown in Table 2, in 2005 proprietors' jobs in the creative industries were estimated to be 8,834 for the State, including 5,190 in Honolulu, 2,006 in Maui, 1,269 in Hawaii County, and 369 in Kauai. The BEA data, however, do not include jobs by occupation; therefore, the creative proprietors' jobs in non-creative industries needed to be estimated in some other ways.

The number of creative proprietors' jobs in other industries was estimated by multiplying the ratio of proprietors' jobs and W&S jobs in other (non-creative) industries by the W&S jobs in creative occupations in non-creative industries.

Accordingly, total creative proprietors' jobs in other industries were estimated to be 1,566 for the state, including 954 for Honolulu, 281 for Maui, 222 for Hawaii County, and 109 in Kauai.

By adding W&S and proprietors' jobs together, total creative jobs in 2005 were estimated to be 28,884 in the state or 3.5 percent of total jobs. Total creative jobs in 2005 were estimated to be 19,949 (3.3 percent of total jobs) in Honolulu, 4,570 (4.8 percent) in Maui, 3,014 (3.3 percent) in Hawaii County, and 1,350 (3.3 percent) in Kauai.

**Table 2. Creative Jobs in the State and By County, 2005**

	State	Honolulu County	Maui County	Hawaii County	Kauai County
<b>DLIR W&amp;S Jobs in Creative Occupations</b>					
Advertising and Promotions Managers	230	196	14	14	7
Computer Software Engineers, Applications	400	324	43	22	11
Architects, Except Landscape and Naval	780	692	48	24	16
Landscape Architects	80	67	5	5	3
Librarians, Curators, and Archivists	1,420	1,169	74	133	44
Art and Design Workers	1,860	1,524	146	123	67
Entertainers and Performers, Spectator Sports and Related	2,680	1,895	335	241	209
Chefs and Head Cooks	1,250	719	277	177	77
Entertainment Attendants and Related Workers	2,690	1,722	503	339	126
Desktop Publishers	90	74	7	7	3
<b>DLIR Total W&amp;S Jobs Creative Occupations</b>	<b>11,480</b>	<b>8,382</b>	<b>1,451</b>	<b>1,084</b>	<b>564</b>
<b>DLIR W&amp;S Jobs Creative Industries</b>					
Motion Picture and Sound Recording Industries	2,203	1,928	106	116	52
Performing Arts, Spectator Sports, and Related Industries	1,824	1,171	467	116	70
Museums, Historical Sites, and Similar Institution	1,465	960	187	148	170
Broadcasting	1,294	1,126	83	56	30
Publishing	2,704	2,174	279	157	94
<b>DLIR Total W&amp;S Jobs in Creative Industries</b>	<b>9,489</b>	<b>7,359</b>	<b>1,122</b>	<b>593</b>	<b>415</b>
Overlapped Creative W&S Jobs (subtracted)	2,485	1,935	289	154	107
<b>Total Creative W&amp;S Jobs</b>	<b>18,484</b>	<b>13,805</b>	<b>2,284</b>	<b>1,523</b>	<b>872</b>
Total DLIR W&S Jobs	602,050	443,150	67,950	62,050	28,900
<b>Share of Creative W&amp;S Jobs in DLIR Total W&amp;S Jobs</b>	<b>3.1%</b>	<b>3.1%</b>	<b>3.4%</b>	<b>2.5%</b>	<b>3.0%</b>
Proprietors' Jobs in Creative Occupations (excluding overlap)	1,566	954	281	222	109
Proprietors' Jobs in Creative Industries					
Motion Picture and Sound Recording Industries	421	298	77	41	5
Performing Arts, Spectator Sports, and Related Industries	7,802	4,496	1,802	1,151	353
Museums, Historical Sites, and Similar Institution	28	18	4	2	4
Broadcasting	130	97	18	13	2
Publishing	452	280	105	62	5
<b>Creative Industries - Proprietors' Jobs</b>	<b>8,834</b>	<b>5,190</b>	<b>2,006</b>	<b>1,269</b>	<b>369</b>
<b>Total Creative Jobs (W&amp;S Jobs plus Proprietors' Jobs)</b>	<b>28,884</b>	<b>19,949</b>	<b>4,570</b>	<b>3,014</b>	<b>1,350</b>
BEA Total Jobs (W&S Jobs plus Proprietors' Jobs)	830,597	601,984	96,132	90,994	41,487
<b>Share of Total Creative Jobs in BEA Total Jobs</b>	<b>3.5%</b>	<b>3.3%</b>	<b>4.8%</b>	<b>3.3%</b>	<b>3.3%</b>

## V. Estimation of Creative Output and Earnings

The estimation of creative output involved estimating two components: (1) the output of the five creative industries and (2) the output generated by the creative jobs in all “other” industries. Similarly, creating earnings involved estimating the earnings in the five creative industries and earnings of creative workers in other industries.

### Data Sources

In addition to the total creative jobs estimated in Section III above, estimation of the creative output and earnings was based on other five sources of data: (1) the state average annual wage by occupation from DLIR for 2005, (2) the 2005 state total annual wages by industry from DLIR, (3) the 2002 state input-output (I-O) Table, (4) the 2002 inter-county I-O Table, and (5) the 2005 BEA GDP (gross domestic product, formerly state gross product or GSP) or value added and earnings data by industry and by county.

1. **The Average Annual Wage by Occupation.** The average annual wage data by occupation for the state are available for 2005 from the DLIR Web site. This data includes the average annual wage by occupation for 648 different occupations. From this data set, we obtained the average annual wage for each of the 10 creative occupations in the state (Appendix Table 1). Because of the lack occupational wage information by county, the state average annual wages for the 10 creative occupations were also applied to the counties.
2. **The 2005 Total Annual Wages by Industry.** The 2005 total annual wages by industry for the state are also available from the DLIR Web site. This data includes 322 lines (industries) of which 19 are at the 2-digit NAICS level, 81 at the 3-digit level, 211 at the 4-digit level, and 11 at the 6-digit level.<sup>10</sup> This data set was grouped into 47 sectors consistent with the DLIR job by industry classification. Among the 47 sectors, 5 are creative industries, 26 are non-creative industries but with creative occupations, and the rest are non-creative industries with no creative occupations. Please note that total wages for some industries are adjusted based on ES202 data because the definitions of some industries are not consistent with the definitions used in the DLIR job data set.

The total creative wages by industry were estimated by multiplying the average wage by occupation in Appendix Table 1 by the corresponding creative jobs in each industry. The results are provided in Appendix Table 2.

Appendix Table 3 shows the total annual wages, the total creative wages, and the percentages of creative wages in total wages by industry for the 26 non-creative industries with creative jobs. These percentages are used to estimate creative output and earnings for the 26 non-creative industries with creative jobs at the state and the county level.

3. **The 2002 State I-O Table.** The 2002 state I-O table includes output estimates for 67 sectors by NAICS code. Since the DLIR job data include only 47 sectors, and the DLIR classification of industry is not the same as used in the I-O table, outputs for some industries in the I-O table

---

<sup>10</sup> Source: (<http://www.hiwi.org/cgi/dataanalysis/industryReport.asp?menuchoice=industry>).

needed to be allocated or aggregated to the 47 industries in the DLIR data. The allocation was based on either the share of the total industry wages based on BEA W&S income data or based on the ES202 data. The 2005 output by industry was estimated based on the 2002 output by industry from the 2002 state I-O table and the growth rate of value added by industry between 2002 and 2005 from BEA.

4. **The 2002 Inter-county I-O Table.** The 2002 inter-county I-O table includes estimated industry level output for 67 sectors by NAICS code by county. The 2005 industry level output for the state was allocated to counties based on counties' shares in state output in 2002.
5. **The BEA GDP and Earnings by Industry and by County.** The 2005 earnings data by industry (NAICS) for the State and the 2004 earnings data by industry for the counties are available from the BEA Web site (BEA, SA05N and CA05N).<sup>11</sup> The BEA earnings data were also grouped into the 47 DLIR industries. The 2005 county level earnings by industry were estimated based on the 2005 state earnings and the shares of each county in state total earnings calculated using the 2004 county level earnings by industry.

## **Estimation Procedures**

Of the two components of the creative output mentioned previously, estimating the first component was straightforward. The total output of the five creative industries defined above was the output of the creative industries sector.

To estimate the second component of creative output, we first estimated the share of creative wages in total industry wages for each of "other" industries with creative jobs. Then, we multiplied the share of creative wages in each industry's total wages by that sector's total output to obtain the creative output by industry. The underlying assumption of this methodology is that the share of creative output generated by *proprietors'* creative jobs in total output is the same as the share of creative output generated by *wage and salary jobs*. To estimate the total creative wages in other industries, we multiplied the average wage by occupation by the corresponding creative jobs for each of the creative occupations in each industry and then summed them up to obtain total creative wages by industry.

The estimation of creative earnings was similar to the estimation of creative output. Total creative earnings were computed as the sum of total earnings in the five creative industries and total earnings of creative occupations in other industries.

## **Creative Output**

As shown in Table 3, total *creative output* for the State in 2005 was estimated to be about \$2,336 million, accounting for 2.7 percent of total state output estimate for that year. The five creative industries generated about \$1,099 million or 47 percent of the total creative output in the State, and other industries with creative occupations accounted for nearly \$1,238 million or 53 percent.

---

<sup>11</sup> The 2005 county level earnings by industry data are not available now and the 2004 earnings of some industries are not available and need to be estimated.

**Table 3. Creative Output by County in Hawaii, 2005 (in \$1,000)**

	State	Honolulu County	Maui County	Hawaii County	Kauai County
<b>Other Industries with Creative Occupations</b>					
Utilities	10,413	6,847	1,433	1,455	678
Construction	13,881	9,426	1,692	2,093	670
Manufacturing	82,938	73,421	5,042	3,537	938
Retail Trade	88,794	61,014	11,938	11,325	4,518
Air Transportation	19,868	17,834	1,065	594	376
Scenic and Sightseeing Transportation	38,590	27,910	4,607	2,860	3,212
Support Activities for Transportation	7,348	5,315	877	545	612
Telecommunications	6,081	4,827	876	225	153
Internet Service Providers, Web Search Portals, etc.	1,384	1,058	236	83	7
Credit Intermediation and Related Activities	12,052	10,291	744	708	309
Real Estate	39,782	26,309	5,874	4,662	2,938
Rental and Leasing Services	15,612	10,324	2,305	1,830	1,153
Professional, Scientific, and Technical Services	185,147	156,126	11,805	11,730	5,486
Management of Companies and Enterprises	8,080	7,371	336	227	145
Administrative and Support Services	30,412	22,949	3,820	2,288	1,355
Educational Services	22,581	19,477	1,506	1,196	402
Ambulatory Health Care Services	4,803	3,554	532	536	182
Hospitals	11,570	9,779	585	766	441
Nursing and Residential Care Facilities	1,253	951	80	177	45
Amusement, Gambling, and Recreation Industries	131,884	73,249	1,086	17,463	10,086
Accommodation	115,388	47,895	33,851	20,866	12,775
Food Services and Drinking Places	137,070	94,997	22,732	11,654	687
Religious, Grant making, Civic, Professional, etc.	106,860	81,900	14,901	6,387	3,672
Federal Government, Excluding Postal Service	52,434	51,067	430	600	336
State Government, Excluding Education and Hospitals	73,728	53,861	7,223	9,165	3,479
Local Government, Excluding Education and Hospitals	19,924	14,555	1,952	2,477	940
<b>Total Other Industries with Creative Occupations</b>	<b>1,237,877</b>	<b>892,308</b>	<b>167,526</b>	<b>115,449</b>	<b>62,594</b>
<b>Creative Industries</b>					
Publishing Industries	481,195	335,964	98,929	28,346	17,957
Motion Picture and Sound Recording Industries	179,567	126,079	10,261	7,259	35,968
Broadcasting (except Internet)	172,958	135,675	20,382	12,633	4,268
Performing Arts, Spectator Sports, & Related Industries	177,013	98,314	41,723	23,439	13,537
Museums, Historical Sites, and Similar Institution	87,805	48,767	20,696	11,627	6,715
<b>Total Creative Industries</b>	<b>1,098,539</b>	<b>744,799</b>	<b>191,991</b>	<b>83,304</b>	<b>78,445</b>
<b>Total Creative Output</b>	<b>2,336,416</b>	<b>1,637,107</b>	<b>359,517</b>	<b>198,753</b>	<b>141,039</b>
<b>Total Output</b>	87,225,595	66,026,204	9,521,757	7,962,064	3,715,569
<b>Share of Creative Output in Total Output</b>	<b>2.7%</b>	<b>2.5%</b>	<b>3.8%</b>	<b>2.5%</b>	<b>3.8%</b>

By county, total creative output in 2005 was estimated to be about \$1,637 million (2.5 percent of total Honolulu output estimate for that year) in Honolulu, \$360 million (3.8 percent) in Maui, \$199 million (2.5 percent) in Hawaii County, and \$141 million (3.8 percent) in Kauai.

Honolulu County accounted for 70 percent of total creative output estimate for the State in 2005, followed by Maui (15.4 percent), Hawaii County (8.5 percent), and Kauai (6 percent).

## **Creative Earnings**

As shown in Table 4, total *creative earnings* in 2005 was estimated to be about \$1,110 million, accounting for 3.4 percent of total earnings estimate in the state in 2005. The five creative industries generated about \$541 million or 49 percent of total creative earnings in 2005 and non-creative industries with creative jobs accounted for about \$570 million for 51 percent.

At the county level, total creative earnings in 2005 was estimated to be about \$825 million (3.2 percent of total earnings) in Honolulu, \$142 million (4.5 percent) in Maui, \$94 million (3.2 percent) in Hawaii County, and \$50 million (3.9 percent) in Kauai.

Honolulu County accounted for 74.3 percent of total creative earnings estimate for the State in 2005, followed by Maui (12.8 percent), Hawaii County (8.5 percent), and Kauai (4.5 percent).

## **VI. Summary**

As shown in Table 5, total creative output estimate for the State increased from 1,984 million in 2002 to \$2,336 million in 2005. This gives an average annual increase of 5.6 percent. Likewise, total creative earnings for the State increased at an annual rate of 3.9 percent to \$ 1,110 million in 2005. Finally, in 2005 total creative jobs (i.e., including both wage and salary jobs and proprietors' jobs) were estimated to be 28,884, an increase of 7.4 percent annually from 2002.<sup>12</sup>

The shares of creative output, creative earnings, and creative jobs in total output, total earnings, and total jobs decreased slightly between 2002 and 2005. In 2005, creative output, earnings and jobs accounted for 2.7 percent, 3.4 percent, and 3.5 percent of total State output, earnings, and jobs, respectively.

---

<sup>12</sup> A similar comparison was not possible for counties because of lack of the occupation-by-industry data by county for 2002.



**Table 4. Creative Earnings by County in Hawaii, 2005 (in \$1,000)**

	State	Honolulu County	Maui County	Hawaii County	Kauai County
<b>Other Industries with Creative Occupations</b>					
Utilities	1,658	1,050	234	265	109
Construction	6,190	4,403	649	898	241
Manufacturing	13,766	10,153	2,179	1,047	386
Retail Trade	33,321	22,955	4,607	3,909	1,849
Air Transportation	4,514	4,002	275	146	91
Scenic and Sightseeing Transportation	24,584	8,894	7,556	4,158	3,975
Support Activities for Transportation	4,804	3,915	301	406	183
Telecommunications	1,249	1,007	144	73	25
Internet Service Providers, Web Search Portals, etc.	318	294	14	8	1
Credit Intermediation and Related Activities	2,687	2,256	176	181	74
Real Estate	5,152	3,495	517	725	415
Rental and Leasing Services	2,557	1,365	413	531	248
Professional, Scientific, and Technical Services	96,916	83,702	5,767	5,466	1,981
Management of Companies and Enterprises	4,045	3,726	157	99	63
Administrative and Support Services	17,929	14,143	1,667	1,179	940
Educational Services	12,925	11,005	846	775	300
Ambulatory Health Care Services	3,049	2,275	313	338	123
Hospitals	3,969	3,697	23	87	162
Nursing and Residential Care Facilities	738	535	85	96	23
Amusement, Gambling, and Recreation Industries	54,878	25,310	12,541	11,809	5,219
Accommodation	43,683	18,337	13,697	7,538	4,111
Food Services and Drinking Places	47,833	33,121	7,822	4,107	2,783
Religious, Grant making, Civic, Professional, etc.	43,323	32,334	5,456	3,830	1,703
Federal Government, Excluding Postal Service	47,516	45,267	711	1,040	497
State Government, Excluding Education and Hospitals	84,203	62,797	7,580	10,431	3,396
Local Government, Excluding Education and Hospitals	7,797	5,362	964	969	501
<b>Total Other Industries With Creative Occupations</b>	<b>569,605</b>	<b>405,399</b>	<b>74,694</b>	<b>60,110</b>	<b>29,402</b>
<b>Creative Industries</b>					
Publishing Industries	213,290	177,838	18,610	11,662	5,180
Motion Picture and Sound Recording Industries	55,483	51,698	1,281	325	2,180
Broadcasting (except Internet)	82,105	74,160	3,632	2,515	1,799
Performing Arts, Spectator Sports, & Related Industries	128,062	81,973	32,594	11,633	1,863
Museums, Historical Sites, and Similar Institution	61,664	33,865	11,293	7,381	9,125
<b>Total Creative Industries</b>	<b>540,604</b>	<b>419,534</b>	<b>67,409</b>	<b>33,515</b>	<b>20,146</b>
<b>Total Creative Earnings</b>	<b>1,110,209</b>	<b>824,933</b>	<b>142,102</b>	<b>93,626</b>	<b>49,548</b>
<b>Total Earnings</b>	33,021,075	25,671,414	3,170,339	2,913,670	1,265,652
<b>Share of Creative Earnings in Total Earnings</b>	<b>3.4%</b>	<b>3.2%</b>	<b>4.5%</b>	<b>3.2%</b>	<b>3.9%</b>

**Table 5. Total Creative Output, Earnings, and Jobs in Hawaii, 2002 and 2005**

	2002	2005	Avg. Annual % Change <sup>*</sup>
Creative Output (\$1,000)	1,984,438	2,336,416	5.6%
Share of Creative Output in Total State Output	2.8%	2.7%	
Creative Earnings (\$1,000)	990,416	1,110,209	3.9%
Share of Creative Earnings in Total State Earnings	3.5%	3.4%	
Creative Jobs (wage & salary plus proprietors' jobs)	23,312	28,884	7.4%
Share of Creative Jobs in Total State Jobs	3.7%	3.5%	

**Appendix Table 1. Average Annual Wage by Occupation in Hawaii - 2005**

Occ Code	Occupation	Average Wage (\$)	DLIR Jobs	Total Wages (\$)
112011	Advertising and Promotions Managers	65,470	230	15,058,100
151031	Computer Software Engineers, Applications	68,940	400	27,576,000
171011	Architects, Except Landscape and Naval	59,030	780	46,043,400
171012	Landscape Architects	61,990	80	4,959,200
254000	Librarians, Curators, and Archivists	45,010	1,420	63,914,200
271000	Art and Design Workers	42,610	1,860	79,254,600
272000	Entertainers & Performers, Sports & Related Wrkrs	56,790	2,680	152,197,200
351011	Chefs and Head Cooks	43,060	1,250	53,825,000
393000	Entertainment Attendants and Related Workers	19,700	2,690	52,993,000
439031	Desktop Publishers	24,450	90	2,200,500
	Total, All Occupations	37,110	602,050	22,342,075,500
	Total, Creative Occupations	43,382	11,480	498,021,200

Source: DLIR

**Appendix Table 2. Total Annual Wages of Creative Occupations by Industry in Hawaii - 2005**

	Advertising and Promotions Managers	Computer Software Engineers, Applications	Architects, Except Landscape and Naval	Landscape Architects
Average creative wages by occupation	65,470	68,940	59,030	61,990
1 Utilities	-	-	-	-
2 Construction	-	-	1,475,750	1,239,800
3 Manufacturing	-	-	-	-
4 RetailTrade	2,291,450	-	-	-
5 Air Transportation	327,350	-	-	-
6 Scenic and Sightseeing Transportation	-	-	-	-
7 Support Activities for Transportation	-	-	-	-
8 Telecommunications	-	-	-	-
9 Internet Service Providers, Web Search Portals, and ...	-	-	-	-
10 Credit Intermediation and Related Activities	1,964,100	-	-	-
11 Real Estate	654,700	-	-	-
12 Rental and Leasing Services	-	-	-	-
13 Professional, Scientific, and Technical Services	1,309,400	-	36,008,300	3,099,500
14 Management of Companies and Enterprises	1,309,400	-	590,300	-
15 Administrative and Support Services	1,964,100	-	1,180,600	-
16 Educational Services	654,700	-	-	-
17 Ambulatory Health Care Services	-	-	-	-
18 Hospitals	-	-	-	-
19 Nursing and Residential Care Facilities	-	-	-	-
20 Amusement, Gambling, and Recreation Industries	327,350	-	-	-
21 Accommodation	654,700	-	295,150	-
22 Food Services and Drinking Places	654,700	-	-	-
23 Religious, Grantmaking, Civic, Professional, and ...	-	-	-	-
24 Federal Government, Excluding Postal Service	-	-	4,722,400	619,900
25 State Government, Excluding Education and Hospitals	-	1,378,800	1,180,600	-
26 Local Government, Excluding Education and Hospitals	-	-	590,300	-

Source: DLIR

**Appendix Table 2. Total Annual Wages of Creative Occupations by Industry in Hawaii - 2005 - Continued**

	Librarians, Curators, and Archivists	Art and Design Workers	Entertainers and Performers, Sports and Related	Chefs and Head Cooks
Average creative wages by occupation	45,010	42,610	56,790	43,060
1 Utilities	-	1,278,300	-	-
2 Construction	-	852,200	283,950	-
3 Manufacturing	-	7,243,700	283,950	-
4 RetailTrade	-	22,583,300	-	-
5 Air Transportation	-	2,130,500	-	861,200
6 Scenic and Sightseeing Transportation	-	4,261,000	8,518,500	-
7 Support Activities for Transportation	-	1,704,400	-	1,291,800
8 Telecommunications	-	426,100	567,900	-
9 Internet Service Providers, Web Search Portals, and ...	-	-	-	-
10 Credit Intermediation and Related Activities	-	213,050	-	-
11 Real Estate	-	639,150	-	-
12 Rental and Leasing Services	-	-	-	-
13 Professional, Scientific, and Technical Services	900,200	17,044,000	567,900	-
14 Management of Companies and Enterprises	675,150	852,200	-	-
15 Administrative and Support Services	675,150	2,130,500	7,950,600	-
16 Educational Services	35,107,800	426,100	11,925,900	-
17 Ambulatory Health Care Services	1,800,400	213,050	-	-
18 Hospitals	1,800,400	213,050	-	1,291,800
19 Nursing and Residential Care Facilities	-	-	567,900	-
20 Amusement, Gambling, and Recreation Industries	-	426,100	17,037,000	2,153,000
21 Accommodation	-	852,200	5,111,100	15,501,600
22 Food Services and Drinking Places	-	-	2,839,500	32,725,600
23 Religious, Grantmaking, Civic, Professional, and ...	1,350,300	-	26,691,300	-
24 Federal Government, Excluding Postal Service	3,150,700	1,704,400	1,135,800	-
25 State Government, Excluding Education and Hospitals	11,252,500	639,150	-	-
26 Local Government, Excluding Education and Hospitals	450,100	213,050	3,407,400	-

Source: DLIR

**Appendix Table 2. Total Annual Wages of Creative Occupations by Industry in Hawaii - 2005 - Continued**

	Entertainment Attendants and Related Workers	Desktop Publishers	Creative Wage by Industry
Average creative wages by occupation	19,700	24,450	
1 Utilities	-	-	1,278,300
2 Construction	197,000	122,250	4,170,950
3 Manufacturing	197,000	122,250	7,846,900
4 RetailTrade	-	-	24,874,750
5 Air Transportation	-	-	3,319,050
6 Scenic and Sightseeing Transportation	2,955,000	-	15,734,500
7 Support Activities for Transportation	-	-	2,996,200
8 Telecommunications	-	-	994,000
9 Internet Service Providers, Web Search Portals, and ...	-	244,500	244,500
10 Credit Intermediation and Related Activities	-	-	2,177,150
11 Real Estate	788,000	-	2,081,850
12 Rental and Leasing Services	1,970,000	-	1,970,000
13 Professional, Scientific, and Technical Services	-	-	58,929,300
14 Management of Companies and Enterprises	-	-	3,427,050
15 Administrative and Support Services	-	-	13,900,950
16 Educational Services	394,000	244,500	48,753,000
17 Ambulatory Health Care Services	-	-	2,013,450
18 Hospitals	-	-	3,305,250
19 Nursing and Residential Care Facilities	-	-	567,900
20 Amusement, Gambling, and Recreation Industries	18,518,000	-	38,461,450
21 Accommodation	9,850,000	-	32,264,750
22 Food Services and Drinking Places	591,000	-	36,810,800
23 Religious, Grantmaking, Civic, Professional, and ...	-	-	28,041,600
24 Federal Government, Excluding Postal Service	-	122,250	11,455,450
25 State Government, Excluding Education and Hospitals	8,865,000	122,250	23,438,300
26 Local Government, Excluding Education and Hospitals	788,000	-	5,448,850

Source: DLIR

**Appendix Table 3. Total Annual Wages and Creative Wages by Industry in Hawaii  
Other Industries with Creative Occupations - 2005**

Industries with creative occupations	Total Wages (\$)	Creative Wages	% of Creative Wages
Utilities	214,314,315	1,278,300	0.60%
Construction	1,800,448,880	4,170,950	0.23%
Manufacturing	515,452,483	7,846,900	1.52%
RetailTrade	1,734,700,944	24,874,750	1.43%
Air Transportation	397,498,869	3,319,050	0.83%
Scenic and Sightseeing Transportation	91,034,647	15,734,500	17.28%
Support Activities for Transportation	169,804,631	2,996,200	1.76%
Telecommunications	248,061,595	994,000	0.40%
Internet Service Providers, Web Search Portals, and ...	\$34,412,963	244,500	0.71%
Credit Intermediation and Related Activities	448,198,953	2,177,150	0.49%
Real Estate	373,875,959	2,081,850	0.56%
Rental and Leasing Services	123,670,273	1,970,000	1.59%
Professional, Scientific, and Technical Services	1,288,342,734	58,929,300	4.57%
Management of Companies and Enterprises	525,517,860	3,427,050	0.65%
Administrative and Support Services	1,078,367,704	13,900,950	1.29%
Educational Services	1,866,051,000	48,753,000	2.61%
Ambulatory Health Care Services	1,077,185,490	2,013,450	0.19%
Hospitals	674,063,550	3,305,250	0.49%
Nursing and Residential Care Facilities	179,695,267	567,900	0.32%
Amusement, Gambling, and Recreation Industries	182,839,204	38,461,450	21.04%
Accommodation	1,326,045,319	32,264,750	2.43%
Food Services and Drinking Places	900,353,100	36,810,800	4.09%
Religious, Grantmaking, Civic, Professional, and ...	307,826,748	28,041,600	9.11%
Federal Government, Excluding Postal Service	1,619,923,200	11,455,450	0.71%
State Government, Excluding Education and Hospitals	887,930,400	23,438,300	2.64%
Local Government, Excluding Education and Hospitals	794,416,400	5,448,850	0.69%
<b>Total other industries with creative occupations</b>	<b>18,860,032,488</b>	<b>374,506,250</b>	<b>1.99%</b>

Source: DLIR