

The Economic Impact of the Craft Beer Industry in Iowa

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Pictures used in the report were either taken by the authors or obtained from public Internet sites.

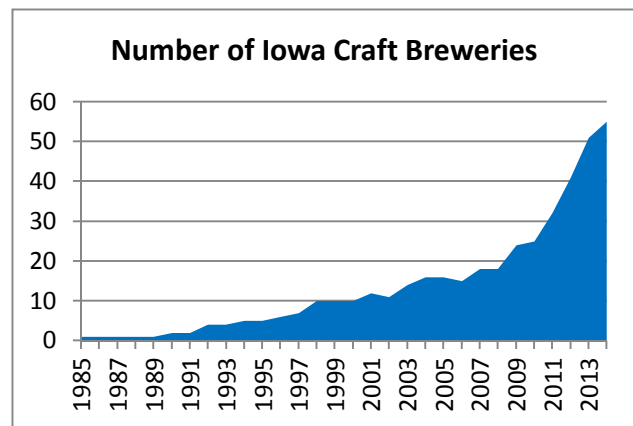
Executive Summary

The economic impact of the Iowa craft brewing industry in 2014 resulted in an increase in the industrial production of Iowa by more than \$100 million, which generated more than 1,500 jobs and increased personal income by nearly \$42 million for Iowans.

Beer production by Iowa's craft breweries and brewpubs is projected to increase from the 2014 level of 40,786 barrels to over 146,000 barrels by 2019. Also, the in-state consumption of craft beer can be expected to increase over the same period from 33,446 barrels to 120,000 barrels. Both increases equal 259% over the five years. This growth would increase Iowa's craft beer market share to 5.0% from its current 1.2% share.

In 1985, Iowa's first craft brewery, Millstream located in Amana, opened for business. From 1985 through 2014, 69 breweries and brewpubs opened, but 15 closed, leaving 54 in operation during 2014. However, a few more may have closed since the end of 2014 and several new ones have opened.

The chart shows the dramatic growth of the number of craft breweries in Iowa. The growth spurt since 2009 owes major credit to a law change that allowed craft breweries to begin producing high alcohol content (over 5% alcohol) beer.



Nationally, during 2014 craft beer sales equaled 21.8 million barrels and generated \$19.6 billion in revenue. These sales accounted for 11% of total beer sales by volume and 19.3% of total sales by value. In Iowa during 2014, craft beer production equaled 40,786 barrels with 33,446 barrels (82%) of this production sold in-state, and 7,341 barrels (18%) sold outside Iowa.

Based on analyses done by the Brewers Association and the Beer Institute using 2012 data, Iowans consumed only 0.41 gallons of craft beer per capita (population age 21 and older) compared to a national average of 2.13 gallons. Iowa's low craft beer consumption rate cannot be attributed to an overall aversion to beer because the State's overall beer consumption per capita during 2012 equaled 33.65 gallons, which was above the national average of 28.17 gallons per capita.

Other findings of this study include:

- Breweries and brewpubs are currently located in 29 Iowa counties. Polk County has the highest concentration with ten and as many as eight more are being planned for the Des Moines Metropolitan area.
- During 2014 breweries and brewpubs in Iowa produced only 816 barrels of beer on average. The national average during 2014 equaled 6,483 barrels. According to 2012 Brewers Association data Iowa ranked only 49th in terms of average production per brewery.
- During 2014, the top five breweries – Backpocket, Millstream, Toppling Goliath, Peace Tree, and Confluence – accounted for 57.5% of total beer production in the State. The top ten breweries accounted for over 78% of production.
- 60% of the Iowa craft breweries produced less than 500 barrels each during 2014.
- All except for four brewpubs, Iowa's breweries and brewpubs are locally owned. Each reflects a local character through its beer styles, beer names, labels and logos, and facility designs.
- Concerning the costs of operating breweries and brewpubs in Iowa, survey responses indicated the following cost shares – hops (1.9%), grains (6.0%), other ingredients (0.7%), chemicals (0.7%), utilities (3.4%), packaging and labeling (9.3%), equipment maintenance (2.0%), merchandise (2.0%), food (11.1%), labor (32.1%), and rent, proprietors income and other (30.7%).
- The survey also reveals the percentages of each input purchased from Iowa sources – hops (0.0%), grain (0.0%), other ingredients (19.7%), chemicals (4.1%), utilities (95.1%), packaging and labeling (16.1%), equipment maintenance (88.3%), merchandise (50.0%), food (56.0%), labor (100.0%), and rent, proprietors income and other (100%).
- The overwhelming majority of the locally owned craft breweries and brewpubs play an active role in their communities. Most are members of their Chambers of Commerce, sponsor charity fundraisers, make financial, merchandise, and beer donations to local charities, and participate in local festivals.
- While nationally, middle and upper income Millennials are the main demographic for craft beer consumers, the Iowa craft beer industry has a clientele that ranges in age from the 20s to the 70s. Also, although in the metropolitan areas these establishments draw heavily from the ranks of young professionals, they also attract blue and grey collar workers. A major client group for many of these establishments is bicyclists.

Chapter 1: Introduction

Iowa's craft beer industry has experienced remarkable growth over the past several years. With this growth expected to continue, the Iowa Economic Development Authority and the Iowa Wine and Beer Promotion Board commissioned this study to gain a better understanding of the industry's impact on Iowa's economy.

Strategic Economics Group (SEG) employed a three-pronged strategy to estimate the current and future impacts of craft brewing in Iowa. First, we conducted a review of the history of the craft brewing industry, which included reading a number of studies of prominent craft breweries. Also, we reviewed six other state craft brewing industry economic impact studies. Second, we surveyed the 53 existing and 20 proposed craft breweries and brewpubs to gain information on the character of Iowa's industry, its supply chain, distribution channels, markets, and future expansion plans. In addition, we gathered Iowa-specific data from other sources, including Iowa's Alcoholic Beverages Division and Iowa Workforce Development. Plus, we conducted an extensive review of industry internet sites, Yelp, Google, Yahoo, Trip Advisor, Urbanspoon and other food service review websites, Facebook pages, and Twitter postings. Third, we developed a customized Iowa IMPLAN model to estimate the statewide economic impacts of the industry.

Some of the major questions addressed in the study are:

- How has the Iowa craft brewing industry grown over the past several decades and what are its future growth prospects?
- What is the distribution of craft breweries and brew pubs throughout the State?
- What are the employment, income, and production impacts of Iowa's craft brewing industry?
- How do Iowa's craft brewers and brew pubs impact the communities in which they are located?

The analyses conducted for this study are presented in five chapters. Chapter Two presents a short history of the nation's and Iowa's brewing industries. Chapter Three summarizes information obtained from the Iowa Craft Brewers' survey and from Iowa brewers' Internet sites, Facebook pages, and social media and review postings. Also, this chapter draws on industry insights obtained through discussions with Iowa industry representatives and information obtained from state regulators. Chapter Four describes the customized Iowa IMPLAN model developed to estimate Iowa industry economic impacts and this chapter

presents and explains the impact estimates. Chapter Five discusses the role played by Iowa's craft breweries and brew pubs in their local communities. Finally, Chapter Six provides an outlook for the Iowa industry's future.

The report also includes three appendices. Appendix A contains questions from the craft brewery and brewpub survey. Appendix B provides a glossary of beer and brewing terminology. Appendix C provides a glossary for IMPLAN input-output model terms.

Chapter 2: Background and Industry Overview



2.1 Overview and Brief History of U.S. Brewing Industry

Even before European settlers arrived in the New World, Native Americans brewed beer made of maize, birch sap, and water.¹ Also, by one account the reason the Pilgrims landed in Massachusetts rather than their original destination in Virginia is owed to their running low on “victuals”, particularly “beere”.²

The first public brewery in the now United States was established in 1625 in New Amsterdam (New York City).³ Although other commercial breweries followed, during the colonial period a considerable amount of beer was brewed by individuals in their homes. Both George Washington and Thomas Jefferson were early home brewers.⁴

Initially, British-style ales dominated beer brewed in America. Ales are brewed from malted barley by a warm fermentation process and are characterized by a sweet, full-bodied, fruity taste. Most ale contains hops as a bittering agent to balance the sweetness of the malt.⁵

With increased immigration from Germany beginning in the late 18th century that accelerated into the 19th century, lager-style beer came to dominant brewing in the United States. Lager-style beers are fermented and conditioned at low temperatures. Lager-style beers often are brewed using lightly roasted six-row barley with adjuncts, such as rice and maize. Lager beers generally have a greater longevity than ales, which can turn sour quickly.⁶

Through the Colonial Period and up until the Civil War the brewing and consumption of beer in the United States remained primarily a local affair. In 1810 the nation’s 140 commercial brewers produced a total of only 180,000 barrels of beer.⁷

However, it was during the 1840s and 1850s that the lighter amber colored German lager-style

¹ Jackson, Michael (1977), *The World Guide to Beer*, New York: Ballantine, p. 208.

² Elzinga, Kenneth G., “The Beer Industry,” in *The Structure of American Industry*, 12th Edition (2009), edited by James Brock, Upper Saddle River, New Jersey: Pearson-Prentice Hall, p. 128.

³ Elzinga (2009), p. 129.

⁴ Stack, Martin (2003). “A Concise History of America’s Brewing Industry”. EH.Net Encyclopedia, edited by Robert Whaples. July 4, 2003. URL <http://eh.net/encyclopedia/a-concise-history-of-americas-brewing-industry/>, Accessed April 26, 2015.

⁵ Smith, Gregg, “Brewing in Colonial America – Part 1,” <http://beerhistory.com/library/holdings/greggsmith1.shtml>, accessed April 26, 2015; Wikipedia, “Ale,” <http://en.wikipedia.org/wiki/ale>.

⁶ Wikipedia, “Beer in the United States,” http://en.wikipedia.org/wiki/Beer_in_the_United_States, accessed April 26, 2015; Wikipedia, “Lager,” <http://en.wikipedia.org/wiki/lager>, accessed April 26, 2015.

⁷ Stack (2003).

beers replaced the British-style heavy dark ale beers as the dominant American beer type. The influx of German immigrants during these two decades provided the country with skilled brewers. By 1859, 1,269 breweries were producing more than a million barrels of beer a year.⁸

Three technological advances – mechanical refrigeration, pasteurization, and railroads – transformed the brewing industry during the latter part of the 19th century. These advances supported the expansion of the market reach of breweries. In addition, they gave rise to innovations in the marketing of beer.⁹ These changes allowed certain brewers to take advantage of production economies of scale and distribution scope economies to build regional dominance. These companies, which included Pabst Brewing Company in Milwaukee and Anheuser-Busch in St. Louis, became known as “shipping” breweries.¹⁰ As Table 1 shows a considerable consolidation of the brewing industry occurred between 1865 and the beginning of Prohibition in 1919.

Table 1. U.S. Brewery Statistics, 1865 - 1915

Year	Number of Breweries	National Production (million bbls)	Average Brewery Size (thousand bbls)	U.S. Population (millions)	Per Capita Consumption (gallons)
1865	2,252	3.7	1,643	35.2	3.3
1870	3,286	6.6	2,009	39.8	5.1
1875	2,783	9.5	3,414	44.4	6.6
1880	2,741	13.3	4,852	50.2	8.2
1885	2,230	19.2	8,610	55.9	10.6
1890	2,156	27.6	12,801	63.0	13.6
1895	1,771	33.6	18,972	68.9	15.1
1900	1,816	39.5	21,751	76.2	16.1
1905	1,847	49.5	26,800	83.2	18.4
1910	1,568	59.6	38,010	92.2	20.0
1915	1,345	59.8	44,461	98.8	18.8

Source: Stack (2003) and Strategic Economics Group

Other trends over the years from the end of the Civil War until Prohibition contributed to the increased consumption of beer. First, during this period large numbers of people from beer drinking countries such as Britain, Ireland, and German immigrated to America. Second, the

⁸ Elzinga (2009), p. 129.

⁹ Elzinga (2009), pp. 129 – 130.

¹⁰ Stack (2003)

industrialization of the United States increased the number of manufacturing and mine workers. Workers' wages rose over this period resulting in the ability to purchase more beer. Fourth, sort of ironically, the temperance movement favored consumption of beer as opposed to spirits because of beer's lower alcohol content.¹¹

Ratification of the Eighteenth Amendment on January 29, 1919, and enactment of the Volstead Act on October 28, 1919 closed down most of the brewing industry. However, some brewers remained in business by manufacturing malt syrup sold as a baking additive, but which mostly was used to make "home brew." In addition, the Volstead Act allowed the continued production of "near beer" that had an alcohol content of not more than 0.5%. Schlitz, Blatz, Pabst, and Anheuser-Busch continued their operations in this manner. These companies and other leading shipping breweries also produced root beer, ginger ale, and soft drinks. Furthermore, betting that the great experiment with prohibition would fail, these companies continued to make investments in bottling technology and transportation vehicles. Funds used to make these investments were at least partially derived from selling off saloons in which many brewers had invested in pre-Prohibition times as a means of promoting their product.¹²

Passage of the Cullen – Harrison Act on March 21, 1933 legalized the sale of beer with 3.2% alcohol content effective April 7, 1933. However, each state was required to enact similar legislation to make the selling of "low alcohol" beer legal within their borders.¹³ On December 5, 1933 Utah became the 36th state to ratify the twenty-first amendment, which repealed the eighteenth amendment and voided the Volstead Act. With the end of Prohibition regulation of alcoholic beverages reverted to the states.¹⁴

By June 1933, 31 breweries had reopened for business and within a year the number rose to 756. But, as is shown in Table 2, the industry quickly began to once again consolidate as the stronger regional breweries expanded their territory. Those that had invested in new technology during Prohibition expanded their reach. One major change that allowed this to occur was the change in how the product was delivered to customers. Prior to Prohibition 85% of beer was sold in kegs, but during Prohibition 80% of near beer and soft drinks were sold in bottles. Also, during the 1920s Blatz and Anheuser-Busch began packaging malt syrup in cans and in 1935 the American Can Company introduced the beer can.¹⁵

¹¹ Stack (2003)

¹² Ibid.

¹³ Wikipedia, "Cullen – Harrison Act," http://en.wikipedia.org/wiki/Cullen%E2%80%93Harrison_Act, accessed April 27, 2015.

¹⁴ Wikipedia, "Volstead Act," http://en.wikipedia.org/wiki/Volstead_Act, accessed April 26, 2015.

¹⁵ Stack (2003)

Table 2. U.S. Brewery Statistics, 1935 - 1990

Year	Number of Breweries	National Production (million bbls)	Average Brewery Size (thousand bbls)	U.S. Population (millions)	Per Capita Consumption (gallons)
1935	766	45.2	59,008	127.1	11.0
1940	684	54.9	80,263	132.2	12.9
1945	468	86.6	185,043	140.1	19.2
1950	407	88.8	218,182	151.3	18.2
1955	292	89.8	307,534	164.0	17.0
1960	229	94.5	412,664	179.3	16.3
1965	197	108.0	548,223	190.9	17.5
1970	154	134.7	874,675	203.3	20.5
1975	117	157.9	1,349,573	215.5	22.7
1980	101	188.4	1,865,347	226.5	25.8
1985	105	193.8	1,845,714	237.9	25.3
1990	286	201.7	705,245	248.7	25.1

Source: Stack (2003) and Strategic Economics Group

The loss of captive saloons as the result of state regulations requiring a “three-tier” distribution system also undermined the ability of smaller local breweries to survive. As a means of preventing pre-Prohibition excesses to reoccur, many states adopted the three-tier system as a means of preventing vertical integration of the brewing, wine making, and distilling industries. This system required the separation of the production, distribution, and retailing of alcoholic beverages. In addition, this system supported the levy and collection of taxes on alcoholic beverages.¹⁶

From the late 1940s through the end of the 1950s the per capita demand for beer declined. During the 1960s and 1970s demand began to increase again at a rate of about 3% per year as baby boomers reached drinking age. The temporary reduction in the legal drinking age to 18 in many states and the increase in beer drinking by women also boosted consumption during this period. Since the 1980s the per capita consumption of beer has stabilized due to a decline in the population of young adults and changes in alcoholic beverage preferences among the drinking age population.¹⁷

¹⁶ Wikipedia, “Three-tier (alcohol distribution),” [http://en.wikipedia.org/wiki/Three-tier_\(alcohol_distribution\)](http://en.wikipedia.org/wiki/Three-tier_(alcohol_distribution)), accessed April 27, 2015.

¹⁷ Elzinga (2009), p. 130.

Following World War II the brewing industry continued to consolidate. In 1947 the top five brewers accounted for only 19.0% of industry production, but by 2006 the top five brewers' share of production rose to 83.9%. During 2005, just three brewers accounted for almost 80% of U.S. consumer demand: Anheuser-Busch (48.5%), Miller (18.3%), and Coors (10.9%).¹⁸

The number of traditional brewers dropped from 175 in 1960 to only 21 in 2005. Two primary causes credited with this consolidation of the industry are mergers and production economies of scale. The period between 1950 and 1983 witnessed 170 horizontal mergers in the beer industry.¹⁹ According to Kenneth Elzinga,

“Most of the mergers in the beer industry did not involve firms of significant stature. Generally, they represented the demise of an inefficient firm that salvaged some remainder of its worth by selling out to another brewer. The acquiring brewer gained no market power but might have benefitted by securing the barrelage to bring one plant to full capacity or by gaining access to an improved distribution network or new territory.”²⁰

Three of the largest brewing companies – Anheuser-Busch, Miller, and Coors – grew primarily through internal expansion over this period. These brewers took advantage of economies of scale, which resulted in lower costs for production, packaging, and warehousing as breweries increased in size up to a capacity of about 4 million barrels per year. As Table 3 shows, the number of breweries in most size categories below this optimal size significantly decreased between 1959 and 2006.

Table 3. Surviving Breweries by Capacity, 1959 - 2006

Capacity Barrels (thousands)	1959	1967	1975	1983	1989	1998	2001	2006
10 to 100	68	36	10	15	8	77	81	83
101 to 500	91	44	19	12	7	19	19	19
501 to 1,000	30	35	13	2	3	1	1	4
1,001 to 2,000	18	18	13	13	5	4	2	2
2,001 to 4,000	8	10	12	9	6	7	5	3
4,000 +	2	4	15	23	20	20	20	22

Source: Elzinga (2009), p. 139.

¹⁸ Elsinga (2009), p. 133.

¹⁹ Ibid.

²⁰ Ibid., p. 139.

Beyond the large national brewers another size group that experienced significant growth, particularly since the mid-1980s were those with production capacity below 100,000 barrels per year. This growth came as a result of the birth of the craft beer movement. The next section of the report provides an overview and brief history of this sector of the brewing industry.

2.2 Overview and Brief History of the Craft Brewing Industry

Iowa has an interesting tie to the birth of the craft beer industry. Frederick Louis (Fritz) Maytag III established the first craft beer brewery when he purchased the Anchor Brewing Company in San Francisco in 1965. He is the great-grandson of the founder of the Maytag Corporation, which was headquartered in Newton, Iowa until purchased by Whirlpool in 2006.

The original Anchor Brewery traces its history back to the 1849 California Gold Rush. The brewery occupied numerous different locations in San Francisco from its founding until 1965 when Fritz Maytag purchased a 51% interest for a few thousand dollars in order to keep the business from closing its doors. He later purchased the remainder of the company.²¹

Beyond his initial investment, Maytag immersed himself in learning the brewing process. He invested in new equipment and focused on improving the cleanliness of the production environment. It was not until 1971 that the revitalized Anchor Brewery produced its first batched of bottled *Anchor Steam*.²² This style of beer dates from the 19th century and was popular around the San Francisco area. It was brewed with bottom-fermenting yeast and at higher than ordinary lager fermentation temperatures. This process gives the beer a high level of carbonation and a light copper color. Modern steam beer is referred to as California Common.²³

The brewery moved to its current location near Potrero Hill (1705 Mariposa Street) in 1979. In 2010 Maytag sold the company to former Skyy vodka executives Keith Greggor and Tony Foglio.²⁴

Anchor Brewing Company remained the lone craft brewery until 1976 when Jack McAuliffe, along with partners Suzy Stern and Jane Zimmerman, established the New Albion Brewing

²¹ Anchor Brewing Company, http://www.anchorbrewing.com/brewery/our_history, accessed April 28, 2015.

²² Wikipedia, "Anchor Brewing Company," http://en.wikipedia.org/wiki/Anchor_Brewing_Company, accessed April 28, 2015.

²³ Steam Beer, http://homebrewtalk.com/wiki/index.oho/Steam_Beer, accessed April 28, 2015.

²⁴ Anchor Brewing Company, http://www.anchorbrewing.com/brewery/our_history, accessed April 28, 2015.

Company in Sonoma, CA. This brewery only lasted until November 1982.²⁵ New Albion is known as the first United States microbrewery of the modern era and Jack McAuliffe is generally referred as the “father of craft beer” in the United States. This brewery consisted of a steel warehouse building that housed food-grade 55-gallon Coca-Cola syrup drums that McAuliffe converted into brewhouse vessels and fermenters. He also repurposed a World War II bottle washer made from battleship decking and a vintage 1910 bottle labeler. This configuration allowed the brewing of 7.5 barrel batches of pale ale, porter, and stout that were bottle-conditioned for five weeks rather than pasteurized.²⁶

Jack McAuliffe started as a homebrewer like many other founders of craft breweries. Another homebrewer with whom he shared his knowledge and expertise was Ken Grossman, who created the Sierra Nevada Brewing Company.²⁷ Unlike New Albion that failed to become profitable and closed after six years, Sierra Nevada located in Chico, CA, has become one of the craft beer industry’s greatest success stories. In 2013 it produced almost one million barrels of beer making it the second largest craft brewery and the seventh largest U.S. brewery overall.²⁸

Ken Grossman’s brewery memoir *Beyond the Pale* provides an informative story of the trials early craft brewers encountered in literally building their businesses from the ground up. Some of the highlights of this story are presented here to illustrate the evolution of the craft brewing industry.

Grossman began experimenting with homebrewing during the summer of 1969 while he was still in high school. Prior to starting in the brewing business he worked as a bicycle mechanic. In 1976 he opened a shop that sold ingredients and equipment to homebrewers. With little access to capital through traditional financial institutions he, like many others, had to turn to family and friends for the funds needed to start Sierra Nevada’s first brewery.²⁹

The story of the early years of Sierra Nevada Brewing Company describes the difficulty that early craft brewers had finding equipment specifically designed for small scale production brewing. Grossman purchased and converted old dairy and soda bottling equipment. Although

²⁵ The New Albion Brewing was revived in 2013 by Jim Koch (the Boston Beer Company) and Jack McAuliffe’s daughter Renee M. DeLuca, who serves as the company’s president. <http://newalbionbrewing.com/about-us/>, accessed April 28, 2015.

²⁶ Wikipedia, “New Albion Brewing Company,” http://en.wikipedia.org/wiki/New_Albian_Brewing_Company, accessed April 28, 2015; Hindy, Steve (2014), *The Craft Beer Revolution: How a Band of Microbrewers is Transforming the World’s Favorite Drink*, New York: Palgrave Macmillan, pp. 13 – 16.

²⁷ Grossman, Ken (2013), *Beyond the Pale: The Story of Sierra Nevada Brewing Co.*, Hoboken, NJ: John Wiley & Sons, pp. 40 – 41.

²⁸ *The New Brewer*, vol. 31, no.3 (May/June 2014).

²⁹ Grossman (2013), pp. 46 - 48.

mechanically inclined, he gained the additional knowledge he needed by taking local college and vocational courses in brewing and refrigeration. In addition, Grossman and his partner, Paul Camusi, researched and catalogued whatever information they could find on brewing methods and science.³⁰

The first Sierra Nevada brewery, which opened in 1980, was located in a 3,000 square-foot metal warehouse to which they added 495 square-feet to accommodate used soda bottling equipment. The initial brewery setup allowed the brewing of ten barrel (310 gallons) batches. Because they only possessed two fermenters they could only brew twelve batches per month.³¹

Marketing their beer proved to be another challenge for Sierra Nevada. Most existing distributors would not handle their product. This meant that to sell their beer they had to self-distribute. Although the three-tier distribution system established in most states following Prohibition required distributors to be owned and operated independent of control by the brewers whose products they sold, the large national brewers in fact asserted considerable influence over their distributors and during the 1980s and 1990s the national brewers strongly discouraged the handling of independently produced craft beers.³² Self-distribution can work as long as a brewery remains small, but once it expands and desires to market its product outside its immediate vicinity the use of independent distributors becomes essential.

One problem Sierra Nevada did not encounter was a lack of demand for its product. It sold all it could produce. From 4,000 barrels in 1985 production jumped to 7,000 barrel in 1986. After it moved to its new brewery production jumped to over 20,000 barrels in 1989. The initial design capacity of the new brewery was 60,000, which Sierra Nevada reached by 1992.

Ken Grossman and the Sierra Nevada Brewing Company illustrate what appears to be another defining characteristic of the craft brewing industry. This is the willingness to share knowledge. In 2008 the Sierra Nevada Brewery started Beer Camp. Initially attendance was by invitation, but in 2011 attendance was opened to others through contest participation. Participants included distributors, barley farmers, chefs, pub owners, and other brewers. At the camp participants learned about beer and the brewing process, developing new brands, and product marketing.³³

Other practices adopted by the Sierra Nevada Brewery, which seem to characterize the industry

³⁰ Ibid., p. 55.

³¹ Ibid., pp. 55, 82, and 88.

³² Ibid., pp. 91 – 108.

³³ Ibid., pp. 225 – 226.

include the willingness to collaborate with other breweries in the development of specialty beers and a commitment to sustainable environmental practices. In regard to the latter, at the new brewery located on 20th Street in Chico, fuel cells and solar panels were installed in an effort to make the brewery energy-independent. Also, waste heat was recycled in order to reduce overall energy use.³⁴

Many other early craft brewers have written accounts of their adventures in brewing. Among these are Steve Hindy and Tom Potter’s (The Brooklyn Brewery) *Beer School*, Tony Magee’s (Lagunitas Brewing Company) *So You Want to Start a Brewery?*, and Sam Calagione’s (Dogfish Head Craft Brewery) *Brewing Up a Business*. In addition, Steve Hindy has written a history of the craft brewing industry entitled *The Craft Beer Revolution*.³⁵

Since the 1980s the number of craft breweries in the United States has exploded as shown in Table 4.

Table 4: Number of Craft Breweries, 1971 - 2014

Year	Contract	Regional	Microbrewery	Total Craft Breweries
1971	0	0	1	1
1975	0	0	1	1
1980	0	1	7	8
1985	4	1	27	32
1990	123	3	85	211
1995	497	24	273	794
2000	1,068	36	405	1,509
2005	991	49	354	1,394
2010	1,057	81	620	1,758
2011	1,085	88	829	1,995
2012	1,155	97	1,149	2,401
2013	1,280	119	1,464	2,768
2014	1,412	135	1,871	3,418

Source: Brewers Association

³⁴ Ibid., pp. 207 – 215.

³⁵ Hindy, Steve, and Tom Potter (2005), *Beer School*, Hoboken, NJ: John Wiley and Sons; Magee, Tony (2014), *So You Want to Start a Brewery? The Lagunitas Story*, Chicago: Chicago Review Press; Calagione, Sam (2011), *Brewing Up a Business: Adventures in Beer*, Hoboken, NJ: John Wiley and Sons; Hindy, Steve (2014), *The Craft Beer Revolution: How a Band of Microbrewers is Transforming the World’s Favorite Drink*, New York: Palgrave Macmillan.

The Brewers Association defines the three categories of craft breweries as follows:

- A contract brewery hires another brewery to produce some or all of its beer. The contract brewing company handles marketing, sales and distribution of its beer, while generally leaving the brewing and packaging to its producer-brewery.
- An independent regional brewery has either an all malt flagship or has at least 50% of its volume in either all-malt beers or in beers which use adjuncts to enhance rather than lighten flavor. A regional brewery is one that produces between 15,000 and 6 million barrels per year.
- A microbrewery is one that produces less than 15,000 barrels of beer per year with 75 percent or more of its beer sold off-site. Microbreweries sell to the public by one or more of the following methods: the traditional three-tier system (brewer to wholesaler to retailer to consumer); the two-tier system (brewer acting as wholesaler to retailer to consumers); and, directly to the consumer through carry-outs and/or on-site tap-room or restaurant sales.³⁶

Just as the number of craft breweries has exploded over the past four decades so has the amount of beer they produced. Table 5 presents the amounts of production by brewery category for selected years from 1971 to 2014.

Table 5: Craft Beer Production (barrels), 1971 - 2014

Year	Contract	Regional	Microbrewery	Brewpub	Total Craft Beer
1971	0	0	2,030	0	2,030
1975	0	0	7,400	0	7,400
1980	0	24,220	2,250	0	26,470
1985	9,000	38,380	26,407	1,473	75,260
1990	203,383	122,000	220,780	88,726	634,889
1995	1,579,495	1,264,177	595,495	377,569	3,816,736
2000	1,364,489	2,474,266	783,153	685,559	5,307,467
2005	854,155	4,059,412	708,014	672,219	6,293,800
2010	230,636	8,034,796	1,141,118	727,427	10,133,977
2011	182,278	9,041,364	1,432,034	811,661	11,467,337
2012	223,264	10,248,111	1,922,550	852,465	13,246,390
2013	240,242	11,980,766	2,408,757	955,599	15,585,364
2014	257,517	17,559,294	3,171,582	1,170,935	22,159,328

Source: Brewers Association

³⁶ Brewers Association, <https://www.brewersassociation.org/statistics/market-segments/>, accessed May 3, 2015.

Any history of the craft brewing industry would be remiss without a mention of the organizations that have promoted and continue to promote the industry. The Association of Brewers (AOB) and its subsidiary the American Homebrewer's Association (AHA) were founded by Charlie Papazian and Charlie Matzen in 1978 in Boulder, Colorado. They also founded the homebrewing magazine *Zymurgy*, which is defined as the science of fermentation. In 1982 AHA sponsored the first Great American Beer Festival. This three-day festival continues to be held each year in Colorado.³⁷

Another organization that represented the political interests of small brewers was the Brewers' Association of America (BAA), which formed in 1942 to lobby for a fair allocation of materials under rationing rules implemented during World War II.³⁸ In 2005 the AOB and the BAA merged to form the Brewers Association (BA) in order to better represent the interests and strengthen the political influence of small brewers. One issue of great importance to the group's members is obtaining the right for small brewers to sell their beer directly to retailers.³⁹

2.3 History of Brewing and Craft Brewing in Iowa

During the 19th century, Iowa possessed an active brewing industry. But several state-imposed prohibition periods enacted prior to ratification of the 18th amendment to the U.S. Constitution caused the number of Iowa breweries to ebb and flow.

Iowa's first brewery – Garvasius Santo – opened in Fort Madison in 1844 and closed in 1855. By 1854 when the first state prohibition law was enacted the number rose to 27. The law could not be effectively enforced and by the time of its modification in 1858, to allow the sale of beer and wine, the number of Iowa breweries grew to 42.

The number of Iowa breweries peaked at 149 in 1875. However, in 1880 and 1882 the Iowa legislature passed a constitutional amendment banning all alcohol and the voters approved the amendment by a 55% to 45% vote. But the law was declared unconstitutional, resulting in the legislature in 1883 enacting an exemption for pharmacists who sold alcohol for medicinal, culinary, or sacramental purposes. This second state prohibition period extended from 1884 to 1893. During these years the number of breweries in the state dropped from 114 to 28. Again the law had holes and some brewing and beer sales continued during this period.

³⁷ American Homebrewer's Association, <http://www.homebrewersassociation.org>, assessed May 2, 2015.

³⁸ Hindy (2014), p. 9.

³⁹ Ibid., p. 167.

For a third time in 1915 and again in 1917 the Iowa General Assembly enacted a prohibition amendment which voters in 56 counties approved in October 1917. This resulted in the closing of all breweries in the State.

During July 1919 Iowa became the tenth state to ratify the eighteenth amendment to the U.S. Constitution.⁴⁰ After the repeal of Prohibition Iowa's brewing industry never recovered. Two breweries reopened in 1933 and the number rose to 4 a year later. From 1961 to 1985 there was only one operating brewery in the State. This was the Dubuque Star Brewery, which in 1991 was purchased by Joseph Pickett. After extensive renovation and replacement of the brewery's 1930s vintage equipment the brewery began producing Pickett's beer, which by the late 1970s had captured a 12% market share in the region. Agri Industries purchased the brewery in 1980 and produced Rhomberg Beer until 1985.⁴¹

In 1989 Zele Brewing Company of Seattle, WA purchased the brewery, but closed it a year later. In 1992 Brandevor Enterprises of Seattle reopened the brewery and produced craft beers. In addition to its own brands, like Biggy Muddy Red Ale, the brewery brewed beer for TGI Friday's, the Marriott Hotel chain, and the west coast brewery Tuan Tony Nguyen. Brewery operations ended in 1999. In 2007 Stone Cliff Winery took over the former Star Brewery Building.⁴²

Figure 1 shows the number of Iowa breweries by year from 1844 through 1985 when Iowa's first craft beer microbrewery, Millstream Brewing Company, opened. In addition, the chart shows the number of openings and closing by year and the periods of State and federal prohibition.

Millstream Brewing Company, located in Amana, was established by Carroll F. Zuber, James Roemig, and Dennis Roemig in the fall of 1985. Millstream is Iowa's first craft brewery and it was the first brewery to operate in the Amana Colonies since 1884. Joseph Pickett designed the brewery and created its original recipes, which included Millstream Lager and Schild Brau Amber. In 2000, three brewery employees, Chris Priebe and Tom and Teresa Albert, purchased

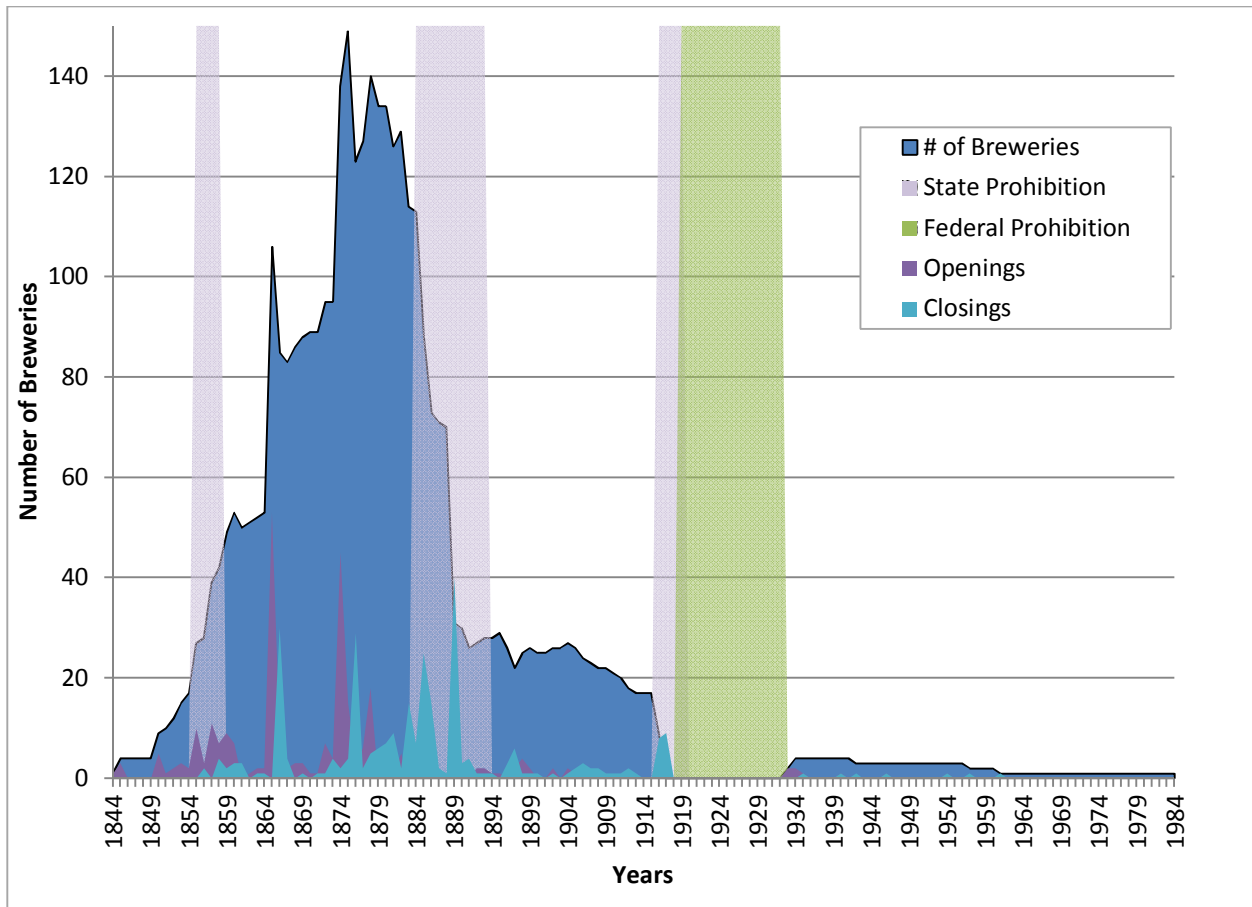
⁴⁰ Turner, Johnathan (June 10, 2012), "Tracing Beer's History in Iowa: Alcohol was Banned Years before Prohibition," *Quad-Cities Times*, <http://www.qconline.com/news/local/tracing-beer-s-history-in-iowa-alcohol-was-banned-years-before-prohibition>, accessed May 2, 2015; Ropte, Dave, compilation of the number of Iowa breweries by year.

⁴¹ Wikipedia, "Dubuque Star Brewery," http://en.wikipedia.org/wiki/Dubuque_Star_Brewery, accessed May 3, 2015.

⁴² Encyclopedia Dubuque, "Dubuque Star Brewing Company," http://www.encyclopediadubuque.org/index.php?title=DUBUQUE_STAR_BREWING_COMPANY, accessed May 3, 2015.

the brewery. Millstream now produces 15 types of beer and two sodas.⁴³

Figure 1: Number of Iowa Breweries, 1844 - 1984



Source: Dave Ropte, 515 Brewing Company

Not until 1990 did Iowa’s second craft brewery, Fitzpatrick’s Alehouse in Iowa City, open for business. This business closed in 2004. Next, Front Street Brewery, located in Davenport, opened for business. During the remainder of the 1990s eight other craft breweries and brewpubs opened for business, but all except two of these have since closed. In addition to the Front Street Brewery, the only 1990s craft breweries that remain in business are the Court Avenue Restaurant and Brewing Company (Des Moines) that opened in 1996 and the Rock Bottom Restaurant and Brewery (West Des Moines) that opened in 1997.

Among the establishments that opened during the 1990s and have since closed are:

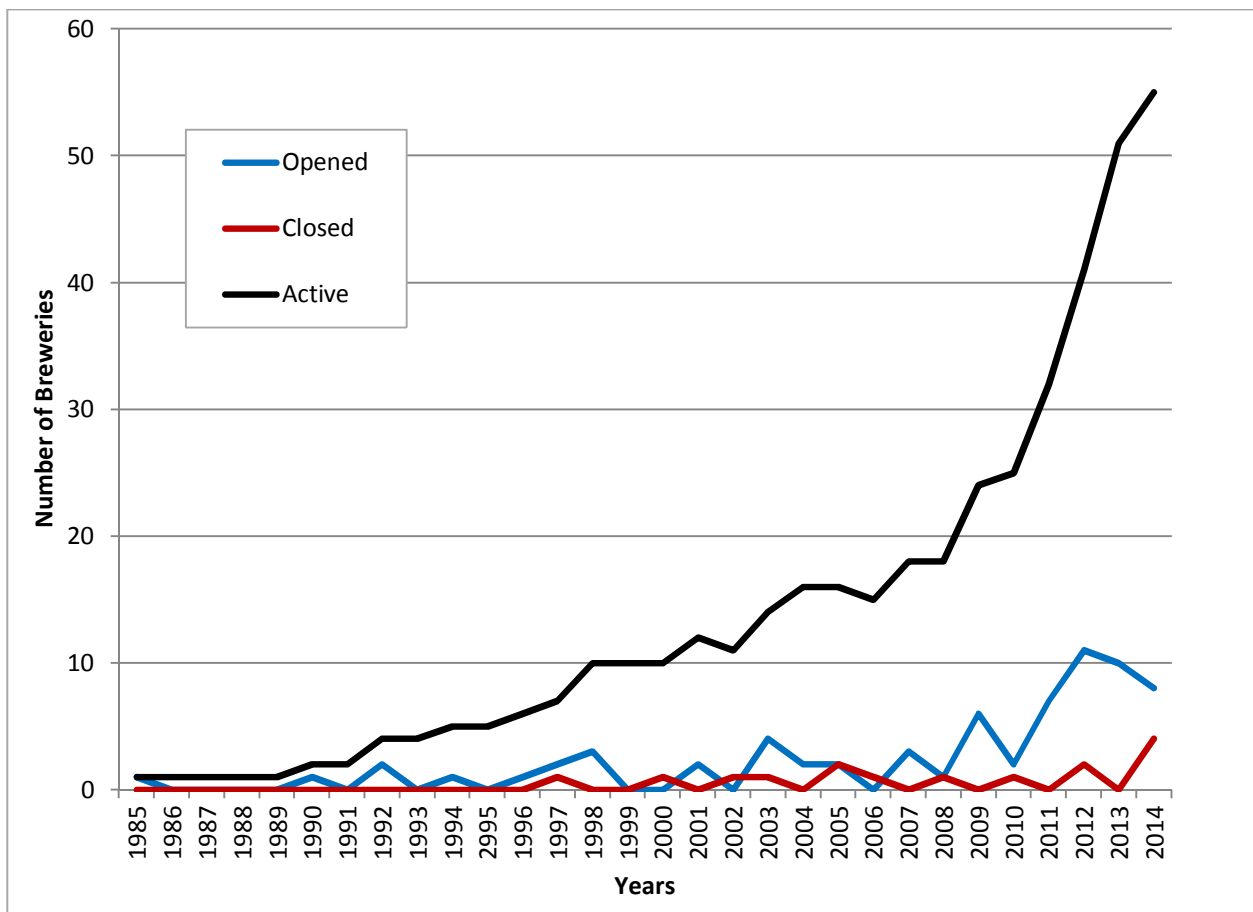
- Dallas County Brewing Company (Adel), 1992 – 1996

⁴³ Wikipedia, “Millstream Brewing,” http://en.wikipedia.org/wiki/Millstream_Brewing, accessed May 3, 2015.

- Babe’s the Brewery (Des Moines), 1994 – 1996
- Raccoon River Brewing Company (Des Moines), 1997 - 2015
- Fourth Street Brewing Company (Sioux City), 1998 – 2002
- Saints Brewing Company (Urbandale), 1998 – 2001

As Figure 2 shows, the rate at which the State added craft breweries and brewpubs picked up since 2000 and particularly since 2009. As is discussed below, the growth since 2009 can at least partly be credited to legislation that redefined high alcohol content beer as beer rather than as liquor.

Figure 2: Number of Openings, Closings, and Active Craft Breweries, 1985 - 2014



Source: Dave Ropte, 515 Brewing Company, Strategic Economics Group

2.4 Industry Regulation and Taxation

Most responsibilities for the regulation of the production and sale of alcoholic beverages reside with the states. The 21st amendment to the U.S. Constitution consists of just three sentences.

Beyond the repeal of the 18th amendment, it delegated to the states responsibility for the regulation of the transportation, importation, and use of intoxicating liquors.

On March 8, 1934, Iowa responded by becoming one of several “control” states by assuming direct control over the wholesale and retail distribution of all alcoholic beverages except beer. In 1972 the Iowa legislature empowered the Beer and Liquor Control Department to regulate the beer industry. Also, during 1972 “grocery store” was redefined to allow gas stations that sell food items to sell beer for off-premises consumption. On July 1, 1986 Iowa’s legal drinking age increased from 19 to 21 years of age.

Effective July 1, 1989 a new special Class A beer (brew pub) permit was created to allow holders of Class C and Class B beer permits to manufacture beer in their establishments for on-premises consumption.

Effective July 1, 1990 new 5-day Class C and special Class C liquor licenses and Class B beer permit were created for festivals, fairs, and celebrations sponsored or authorized by a local authority.

In March 2010 legislation was enacted establishing Class AA and special Class AA permits, which allow the manufacture of “high alcohol content” beer. The legislation defined high alcohol content as beer containing more than 5% but not more than 12% alcohol by weight. Previously high alcohol content beer was classified as liquor meaning it had to be wholesaled through the Alcoholic Beverages Division rather than by private distributors. In addition, because a single establishment could not hold both a brewer’s and distiller’s license the prior law constrained the number of craft brewers because many craft beers have an alcohol content greater than 5%.⁴⁴

During the 2015 legislative session the Iowa General Assembly enacted legislation that allows groceries and convenience stores to sell beer in growlers for off-premises consumption. However, brewpubs are still required to sell the beer they produce to a distributor and then purchase it back in order to offer growler sales.

The Alcohol Beverages Division (ABD) of the Iowa Department of Commerce administers state law pertaining to the manufacture, distribution, and retailing of alcoholic beverages in Iowa. Types of licenses and permits required to manufacture, wholesale, and retail beer in Iowa are summarized in Table 7.

⁴⁴ Iowa Alcoholic Beverages Division, “Historical Highlights,” http://iowaabd.com/about/division/historical_highlights, accessed April 30, 2015.

Table 7. Iowa Beer Permit and Liquor License Types

License/ Permit Type	Licensing Designation	Description	Iowa Code Section
Class "A" Beer Permit	BA	<i>For wholesale beer distributors. Allows the manufacture and sale of beer at wholesale to licensed retailers.</i>	123.124
	BAN	<i>For wholesale native beer distributors. Allows for the manufacture and sale of beer at wholesale to licensed retailers and other beer wholesalers.</i>	123.130
Class "AA" Beer Permit	BAA	<i>For wholesale beer distributors. Allows the manufacture and sale of high proof beer at wholesale to licensed retailers.</i>	123.124
	BAAN	<i>For wholesale native beer distributors - high proof. Allows for the manufacture and sale of high proof beer at wholesale to licensed retailers and other high proof beer wholesalers.</i>	123.124
Special Class "A" Beer Permit	Brew Pub Privilege	<i>For class "C" liquor licensees or class "B" beer permittees. Allows the license/permit holder to manufacture beer and sell it for consumption on its licensed retail premises only and does not allow for self-distribution.</i>	123.124
Special class "AA"Beer Permit	High Proof Brew Pub Privilege	<i>For class "C" liquor licensees or class "B" beer permittees. Allows the license/permit holder to manufacture high proof beer and sell it for consumption on its licensed retail premises only and does not allow for self-distribution.</i>	123.124
Class "B" Beer Permit	BB	<i>For taverns, bars, restaurants, etc. Allows commercial establishments to sell beer for on-premises consumption. Also allows carry-out sales of beer in original unopened containers.</i>	123.124
Class "C" Beer Permit	BC	<i>For grocery stores, convenience stores, pharmacies, etc. Allows commercial establishments to sell beer for off-premises consumption in original unopened containers. No sales by the drink.</i>	123.124
Class "C" Liquor License	LC	<i>For taverns, bars, restaurants, etc. Allows commercial establishments to sell liquor, wine, and beer for on-premises consumption. Also allows carry-out sales of beer in original unopened containers.</i>	123.30(3)(c)
Special class "C" Liquor License	BW	<i>For taverns, bars, restaurants, etc. Allows commercial establishments to sell wine and beer for on premises consumption. Also allows carry-out sales of beer and wine coolers in original unopened containers.</i>	123.30(3)(c)

In addition, to licenses and permits ABD has the responsibility for granting special privileges for the retailing of alcoholic beverages. These pertain to:

- Operation of a brewpub,
- Providing catering services,
- Existence of private living quarters at locations holding liquor licenses and beer permits,
- Outdoor service, and
- Sunday sales.⁴⁵

Although Iowa is a “three-tier” distribution state, breweries are allowed to self-distribute. Brewpubs, on the other hand, must sell the beer they produce to distributors and then buy it back in order to be able to make sales of their beer for off-premises consumption.

Iowa currently imposes a 19-cent per gallon (\$5.89 per barrel) beer excise tax. The tax attaches when beer is sold to the retailers and directly to consumers. This means brewers only pay the tax on the beer they sell directly to retailers and consumers. Distributors collect the tax on other sales for retail consumption in the state and no state tax is owed on beer produced in Iowa but sold out of state. State and local sales taxes also apply to retail purchases of beer and other alcoholic beverages.

The median beer excise tax rate among the states and the District of Columbia equals \$0.20 per gallon. Tennessee’s tax rate of \$1.29 per gallon is the highest and Wyoming’s tax rate of \$0.02 per gallon is the lowest. Iowa’s tax rate ranks 27th. The tax rates for Iowa’s surrounding states are: Illinois (\$0.231), Minnesota (\$0.15), Missouri (\$0.06), Nebraska (\$0.31), South Dakota (\$0.27), and Wisconsin (\$0.06).⁴⁶

Although most regulation of alcohol beverage production and sales resides with the states, the federal government does possess some regulatory power and it does impose an excise tax on the production of alcoholic beverages.

On October 14, 1978, President Jimmy Carter signed into law H.R. 1337 that allowed the brewing of beer for personal and family use and exempted it from federal taxation. The law went into effect on February 1, 1979.⁴⁷ Although homebrewers existed before this time, the

⁴⁵ Iowa Alcoholic Beverages Division, “License Classifications,” <http://iowaabd.com/alcohol/licensees/licensing/licenses>, accessed April 30, 2015.

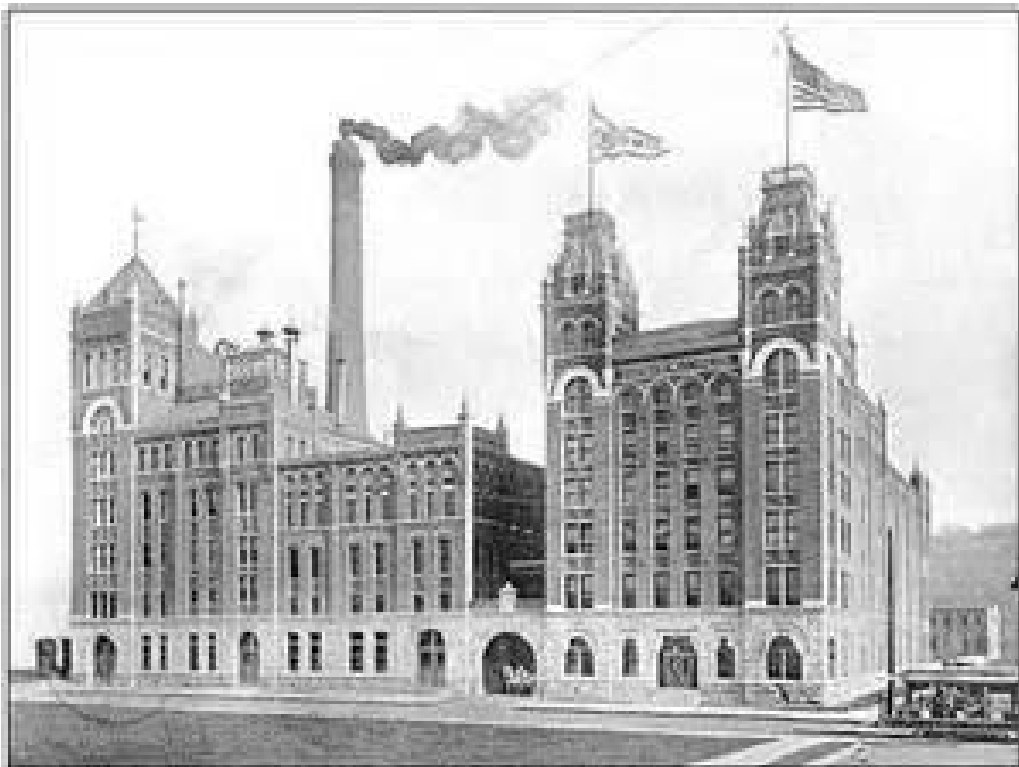
⁴⁶ Federation of Tax Administrators, <http://www.taxadmin.org/fta/default.html>, accessed May 5, 2015.

⁴⁷ American Homebrewers Association, “Statutes,” <http://www.homebrewersassociation.org/homebrewing-rights/statutes/>, accessed May 1, 2015.

legislation legalized this “hobby” and allowed companies that supported these hobbyists to come into the open and expand.

Commercial brewers and brewpubs are required to register with and be approved by the Alcohol and Tobacco Tax and Trade Bureau (TTB) of the U.S. Department of the Treasury. The TTB enforces federal law related to the creation, labeling, and advertising of alcoholic beverages under 27 CFR (Code of Federal Regulations) Part 7, Labeling and Advertising of Malt Beverages and under 27 CFR Part 16, Alcoholic Beverages Health Warning Statement.

The federal tax on the production of beer equals \$18 per barrel for larger breweries. For breweries that produce less than 2 million barrels per year the tax is imposed at a rate of \$7 per barrel for the first 60,000 barrels produced per year with any additional production taxed at the \$18 per barrel rate.⁴⁸



Old Dubuque Brewery

⁴⁸ Alcohol and Tobacco Tax and Trade Bureau, “Tax and Fee Rates,” http://www.ttb.gov/tax_audit/atftaxes.shtml, accessed May 1, 2015.

Chapter 3: Economic Characteristics of the Craft Beer Industry in Iowa



3.1 National Craft Beer Industry

Before providing a description of Iowa's craft beer industry some national statistics will help provide perspective. During 2014 beer sales totaled 197.1 million barrels (6.1 billion gallons) nationally, which generated \$101.5 billion in revenue. Craft beer sales during 2014 equaled 21.8 million barrels (675.1 million gallons) valued at \$19.6 billion. Thus, craft beer accounted for 11.0% of beer sales by volume and 19.3% by value of total United States beer sales last year. Furthermore, while total U.S. beer sales increased by only 0.5% during the year, the sale of craft beers increased by 17.6%.⁴⁹

Going back to just the year 2010, craft beer sales totaled only 10.1 million barrels and market share that year equaled only 5.0%. In the year 2000, craft beer sales totaled only 5.3 million barrels and that year claimed a market share of only 2.6%. Thus, during the past fourteen years craft beer sales have grown by over 400%.

Based on the most recent data on craft beer production for the year 2013 compiled by the Brewers Association, Table 8 shows the rankings and share of national total for the ten states with the greatest craft beer production, plus Iowa.

Table 8: Top States Craft Beer Production, 2013

Rank	State	2013 Barrels	Share
1	California	2,948,895	18.9%
2	Pennsylvania	1,788,556	11.5%
3	Colorado	1,413,242	9.1%
4	Ohio	1,097,955	7.0%
5	Oregon	877,891	5.6%
6	New York	859,535	5.5%
7	Texas	848,259	5.4%
8	Michigan	582,909	3.7%
9	Wisconsin	444,311	2.9%
10	Minnesota	367,681	2.4%
40	Iowa	29,417	0.2%

Source: Brewers Association

⁴⁹ Brewers Association, <https://www.brewersassociation.org/statistics/national-beer-sales-production-data/>, accessed May 4, 2014.

3.2 Description of the Iowa Craft Brewing Industry

Craft Beer Production and Sales Channel Statistics

Twenty-eight craft breweries and 22 brewpubs operated in Iowa during at least part of 2014.⁵⁰ According to data obtained from monthly reports filed with the Iowa Alcoholic Beverages Division (ABD) these establishments produced 40,786 barrels of beer during 2014. This production was split about evenly between the breweries (19,488 barrels) and the brewpubs (21,298). The ABD data further reveals that these establishments sold 19,673 barrels (48%) directly to retailers and customers, 13,773 barrels (34%) to Iowa distributors, and 7,341 barrels (18%) out-of-state.⁵¹

Backpocket Brewing Company (Coralville) produced the greatest amount of beer during 2014 accounting for almost 23% of total production in the State. The next four highest volume producers were Millstream Brewing Company (Amana), Toppling Goliath Brewing Company (Decorah), Peace Tree Brewing Company (Knoxville), and Confluence Brewing Company (Des Moines). The combined production of these five companies accounted for over 57% of the total Iowa beer output. The ten top producing establishments accounted for over 78% of Iowa craft beer production.

Craft Brewery and Brewpub Locations

Breweries and brewpubs are currently located in 29 counties. Given that a number of new breweries and brewpubs are in the planning stage this number will likely increase during 2015. Polk County with 10 locations has the highest concentration of these businesses. Five of the Polk County locations are in or near downtown and the remaining Polk County locations are in the suburbs. Linn County with five locations has the next highest number. Black Hawk County and Scott County each have three locations. Three counties – Cerro Gordo, Clayton, and Johnson – each have two locations. There are 22 counties with a single location.

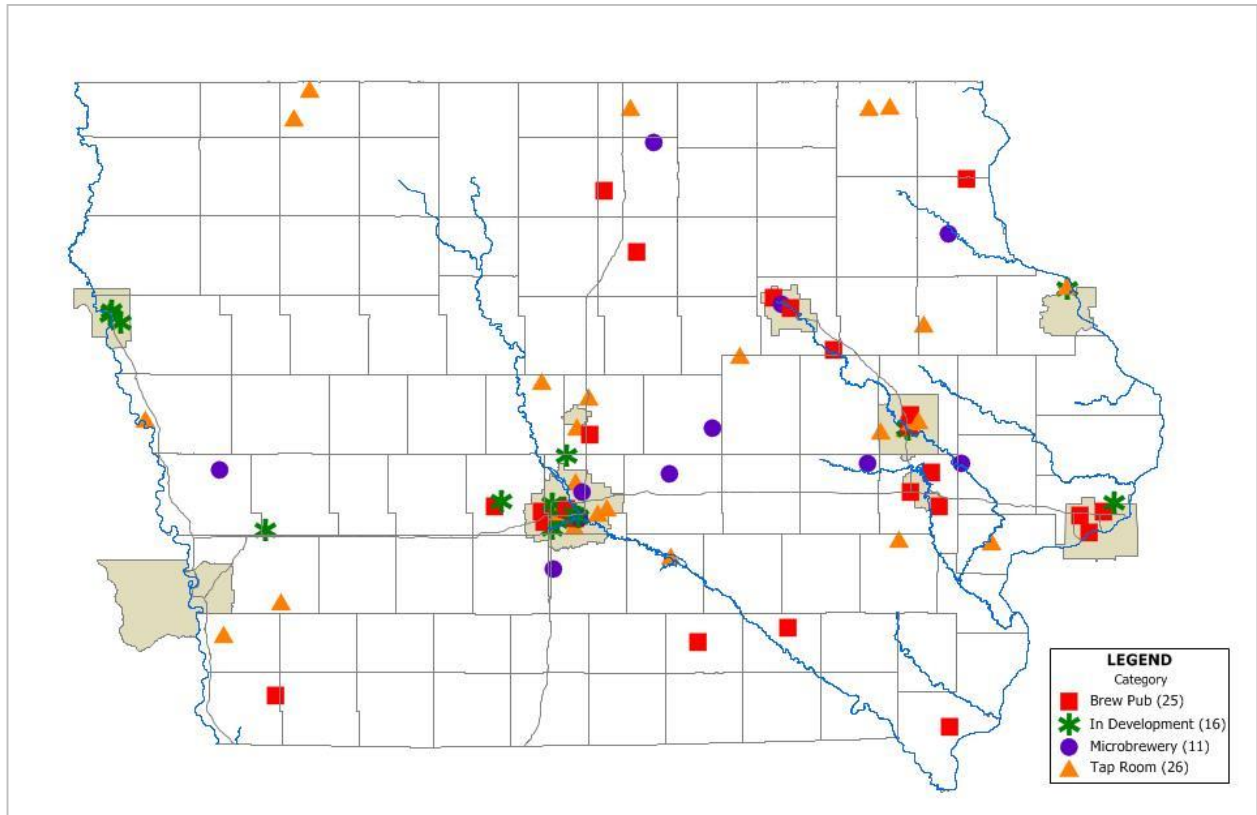
Another way of looking at brewery and brewpub geography is in terms of the metropolitan versus non-metropolitan area split. Twenty-two of the breweries and brewpubs are located in metropolitan areas. Twelve of these are brewpubs. Of the 28 located in non-metropolitan areas, five are located in cities with under 1,000 population and eight others are located in cities with populations between 1,000 and 2,500.

⁵⁰ A few more breweries and brewpubs may have been officially open during 2014 but they did not file tax reports.

⁵¹ The 2014 Iowa craft beer production statistics were compiled from the Iowa Alcoholic Beverage Division's on-line On-Demand Reporting System (<https://licensing.iowaabd.com/OnDemandReport.aspx>). 2014 data for a small number of establishments were missing. In these cases SEG used data from 2013, other ABD reports, and the craft brewery and brewpub survey to estimate 2014 production amounts.

The distribution of breweries and brewpubs is illustrated in Figure 3. This map makes a distinction between breweries with tap rooms and breweries without tap rooms (labeled “microbreweries”). In addition, the locations of new facilities in various stages of development are shown on the map.

Figure 3. Craft Brewery and Brewpub Locations



Source: Strategic Economics Group

Brewery and Brewpub Operations

As indicated previously, the Iowa craft brewing landscape is constantly changing. This section describes this landscape at the end of 2014.

As shown in Table 9, during 2014 Iowa had 18 production breweries with tap rooms and 11 breweries without tap rooms. In addition, there were 22 brewpubs located in the state and 15 of these had full restaurant menus. One company, Front Street Brewery, operates both a pub and eatery and a tap room located about two blocks apart along River Drive in Davenport. Periodically, ten of the establishments offer live entertainment.

Table 9. Characteristics of Iowa Craft Brewers

Criteria	Count
Total craft brewers by end of 2014	50
Production breweries only	11
Production breweries with tap rooms	18
Brewpubs	22
Brewpubs with full restaurant menus	15
Live entertainment	10

Source: Strategic Economics Group

Also shown in Table 10 most of the brewpubs are open seven days a week, but the majority of the breweries with tap rooms have these facilities open only Wednesday through Sunday. In addition, Table 11 shows that the number of hours per day that the tap rooms are open for business is considerably less than for the brewpubs.

Table 10. Number Open Each Day

Day	Tap Rooms	Brewpubs
Monday	4	17
Tuesday	6	21
Wednesday	13	22
Thursday	18	22
Friday	18	22
Saturday	18	22
Sunday	12	20

Source: Strategic Economics Group

Table 11. Average Hours per Week

Day	Tap rooms	Brewpubs
Monday	1.3	14.2
Tuesday	2.4	11.4
Wednesday	5.1	11.6
Thursday	7.0	11.8
Friday	8.0	12.7
Saturday	9.8	13.0
Sunday	4.6	9.6
Total	38.3	84.4

Source: Strategic Economics Group

Information on the exact number of people directly employed in this industry is hard to find. However, staff of the Iowa Department of Workforce Development (IWD) did compile aggregate quarterly statistics for the list of licensed breweries and brewpubs provided by Strategic Economics Group. The data compiled by IWD only covers the period from the fourth quarter of 2013 through the third quarter of 2014.⁵² In addition, the IWD data only covers companies that have payroll employees and that pay unemployment insurance taxes. Table 12 summarizes the IWD data by quarter.

Table 12. Average Employees, Payroll, and Pay

Quarter	Employees	Payroll	Average Pay
2013Q4	1,040	\$4,519,588	\$17,383
2014Q1	1,030	\$4,266,503	\$16,569
2014Q2	1,120	\$5,014,807	\$17,910
2014Q3	1,717	\$7,592,433	\$17,688
Average	1,227	\$5,348,333	\$17,435

Sources: Iowa Workforce Development, Strategic Economics Group

The quarterly employees and payroll statistics show a significant increase over just this one year. The data that were provided actually indicates the number of employees by month. From October 2013 to September 2014 the number of employees for which unemployment insurance taxes were paid increased from 1,056 to 1,947, which equals an 84.4% increase.

3.3 Iowa Craft Breweries and Brewpubs Survey

During March, SEG sent a questionnaire to 53 existing brewery and brewpub license holders and to representatives of ten other prospective breweries and brewpubs that indicated they will likely open for business during 2015. Appendix A contains a copy of the questionnaire. The questionnaire was administered using the Survey Monkey on-line service.

In preparing the list of establishments to be surveyed, SEG identified another 16 potential fledgling brewers that have established websites and social media pages, have been testing craft beer recipes, attending trade shows or ‘tastings’, but have not yet applied for a state license. These organizations were not surveyed.

⁵² Data for the fourth quarter of 2014 were not available at the time the request for employment and payroll data was made to Iowa Workforce Development.

Prior to its distribution, several versions of the survey were tested on the executive director of the Iowa Brewers Guild, a representative of the Iowa Tourism Office, and two brewery/ brewpub owners. The 34 responses included 27 of the 53 licensed and open establishments (a 51% response rate) and 7 of the 10 businesses likely to open in 2015 or soon thereafter (a 70% sample). Following is a summary of responses to the questionnaire.⁵³

Survey Contacts: Eighteen respondents indicated that their contact person – the person who completed the questionnaire – was a brewer. Seven said they were the brewer/owner and 16 others indicated they were the CEO, owner, managing partner, founder, president or some executive position indicating a specialty in business - not brewing skills.

When asked how they got started in the brewing business, 21 (61%) indicated that they had been a home brew hobbyist who made their hobby into a business.

Table 13. How They Got Started in the Business

Started small as a home brewer and just kept growing	21
Bought the business or the equipment from someone else	4
Was hired to work in this business	3
Had no previous interest in brewing but thought this might be a good investment	3
Was previously working for another craft brewery and decided to start my own	2
Was in the restaurant industry. We purchased a small building and inserted a nanobrewery.	1
Total	34

Source: SEG 2015 Iowa Craft Brewers Survey

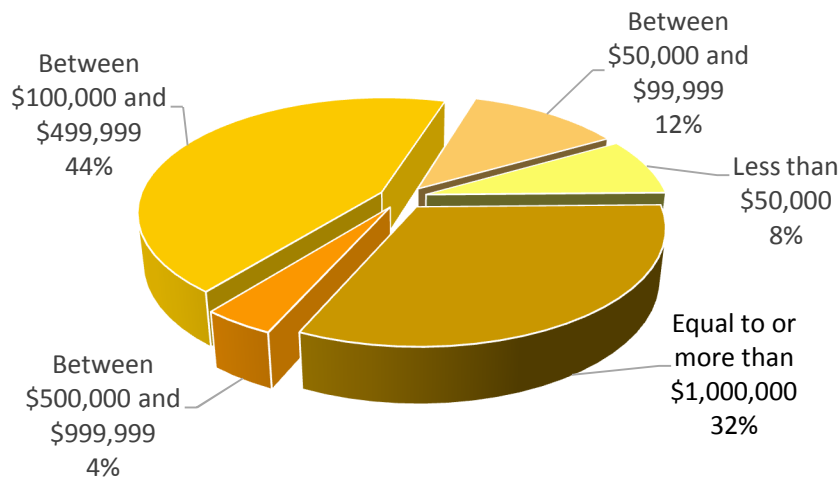
⁵³ The survey answers are presented in this report in a manner that will not identify the financial information of individual establishments. Even with this pledge of confidentiality, about 20% of the participants did not answer the financial questions.

Business Size: Of the 34 respondents, the smallest business site was 400 square foot, the largest was 30,000, and the average was 5,200. For the 24 that had retail space (including tasting rooms or tap rooms and brewpubs), the smallest indicated an occupancy capacity of 20 customers, the largest was 350, and the average was 122.⁵⁴ For those 24 establishments, all of them were open Thursdays and Saturdays, 96% were also open Fridays, 75% Wednesdays, 63% Sundays, 42% Tuesdays and only 29% were open on Mondays. On average, the 53 establishments were open about 49 hours per week.

The survey indicated that 13 of the establishments owned their physical facilities and 14 rented.

Capital Investment: For the 27 respondents that were open for business at the time of the survey, 25 indicated that their capital investment averaged about \$740,000, the highest investment was \$5.5 million and the lowest was \$10,000. Five invested less than \$50,000 and eight had invested at least a million dollars in their equipment and facilities.

Figure 4. Capital Investment in Iowa Craft Brewing Establishments



Source: SEG 2015 Craft Brewers Survey

2014 Production Level: During 2014, the 24 respondents who provided information indicated that they had produced an average of 870 barrels. But that number was skewed by five brewers that produced at least 2,000 barrels each in 2014. The highest was more than 5,000 barrels and the lowest amount produced was two barrels.

⁵⁴ One respondent indicated an occupancy of 20. However, Iowa law (Iowa Code 123.128(2)) requires a minimum seating for 25 in order to serve alcoholic beverages.

Production Capacity: About 20% of the brewers fit the nanobrewery definition by having equipment that only produced one barrel per batch. Although there is no exact definition, breweries with production capacity of seven barrels per batch or less are generally viewed as falling in the nano category. There are a number of factors that influence the amount of beer that can be brewed. In addition to the production capacity of the brewhouse, the number and size of fermentation tanks and the method of fermentation used have a significant impact on total output amounts.

Table 14. Barrels per Batch

Barrels	Count
1	5
2	2
3	4
4	2
5	2
7	1
8	1
10	1
15	2
20	4
30	1
40+	2
Total	26

Source: SEG 2015 Craft Brewers Survey

2014 Revenue Level: For the 22 breweries that provided information, gross revenues averaged \$555,000 and ranged from a low of zero to a high of \$3.1 million. The total expenses for these breweries averaged \$483,000 and ranged from a low of \$700 to a high of \$2.9 million.

Where Their Beer Is Sold: For the 24 who responded, 18 indicated that 100% of their beer was sold within Iowa. For those who sold their beer to customers outside of Iowa, the surrounding states of Illinois, Nebraska, Minnesota, North and South Dakota, Kansas and Wisconsin were listed as their markets. Five brewers sold at least 10% of their production outside of Iowa.

What Brewing Inputs Did They Buy?: The 20 brewers who answered this question spent a total of \$5.2 million on brewing inputs and services – about \$1.5 million were purchased from Iowa vendors. Table 15 summarizes the information provided by the six brewpubs and Table 16 provides comparable information for 14 breweries that responded to this question.

Based on other research, it is not surprising that a very small share of the ingredients used to produce craft beer in the State were obtained from Iowa suppliers. For example, hops production in the United States is concentrated in three northwestern states – Washington (74%), Oregon (14%), and Idaho (10%).⁵⁵ Similarly, very little barley is grown in Iowa. The main purchases made by brewpubs and breweries from Iowa suppliers were utilities, food items, maintenance services, and promotional merchandise.

Overall, among the companies that responded to the survey, 31% of brewpub purchases and 25% of brewery-tap room purchases were made from Iowa suppliers during 2014.⁵⁶

Table 15. Brewing Inputs Purchased by the 6 Brewpubs Surveyed

Brewing Inputs	Input Purchase	Share of Total	Iowa Purchase	Iowa Share
Hops	\$27,390	0.70%	\$40	0.20%
Grains	\$26,450	0.60%	\$100	0.40%
Other brewing ingredients	\$2,210	0.10%	\$1,700	76.90%
Chemicals	\$11,200	0.30%	\$0	0.00%
Utilities	\$137,043	3.20%	\$150,043	NM
Packaging, labeling, distributing and marketing	\$7,650	0.20%	\$3,150	41.20%
Equipment maintenance	\$46,590	1.10%	\$46,590	100.00%
Merchandise	\$25,338	0.60%	\$17,500	69.10%
Food	\$969,500	22.90%	\$580,000	59.80%
Labor	\$1,954,666	46.20%	\$1,954,666	100.00%
Rent and other	\$1,020,663	24.10%	\$1,020,663	100.00%
Total	\$4,228,700	100.00%	\$3,774,452	89.30%

Source: SEG 2015 Craft Brewers Survey

⁵⁵ Eric Connor, “Why is Craft Beer So Expensive? Blame it on Hops,” *USA Today*, July 20, 2014.

⁵⁶ These percentages exclude labor, proprietors income, and rent.

Table 16. Brewing Inputs Purchased by 14 Production Breweries

Brewing Inputs	Input Purchase	Share of Total	Iowa Purchase	Iowa Share
Hops	\$153,729	3.0%	\$0	0.0%
Grains	\$541,841	10.4%	\$0	0.0%
Other brewing ingredients	\$65,268	1.3%	\$11,592	17.8%
Chemicals	\$51,744	1.0%	\$2,600	5.0%
Utilities	\$181,591	3.5%	\$152,901	84.2%
Packaging, labeling, distributing and marketing	\$871,946	16.8%	\$138,332	15.9%
Equipment maintenance	\$142,309	2.7%	\$120,178	84.5%
Merchandise	\$166,936	3.2%	\$78,656	47.1%
Food	\$79,900	1.5%	\$7,400	9.3%
Labor	\$1,077,799	20.7%	\$1,077,799	100.0%
Rent and other	\$1,872,971	36.0%	\$1,872,971	100.0%
Total	\$5,206,034	100.0%	\$3,462,429	66.5%

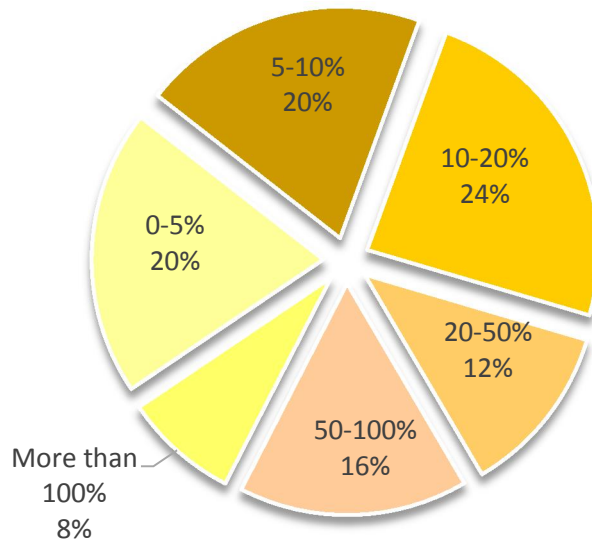
Source: SEG 2015 Craft Brewers Survey

2014 Wage and Salary Level: For the 22 brewers that responded to the financial questions on the survey, their total payrolls averaged \$147,000 (excluding the cost of employee benefits). The highest payroll was \$1.3 million. Nine of the brewers had payrolls in 2014 that exceeded \$100,000.

Jobs and Benefits: The 26 open establishments that responded to the survey employed 137 full-time and 244 part-time workers. The respondents indicated that they intend to hire 22 additional full-time workers and 43 additional part-time workers in 2015. Nine reported that they offered health care coverage for their full-time and 10 for their part-time workers.

Growth Expectations 2015 and Beyond: Regarding future revenue growth, the respondents were generally optimistic. Eight percent expected to double their revenues in 2015. About one-quarter of them expected to see revenue grow by at least 50%.

Figure 5. Future Revenue Growth Expectations



Source: SEG 2015 Craft Brewers Survey

'In Development' Brewers Survey Responses: The survey invitations were also emailed to brewers who were on the verge of receiving license approval and likely to be opening their establishments in the near future. Of those, seven responded. We asked that group an alternative set of questions aimed at identifying any obstacles that they experienced in getting their business started. Here are the responses:

Obstacles: Of the seven respondents, two indicated personal finances and three indicated borrowing capacity was their major reason for not opening sooner. Five said that finding the right location was their obstacle and two indicated not enough time to devote to the project. None of them felt that there was not enough well-trained staff available.

Plans: One of the seven did not have an intended opening date, but the other six identified the month in 2015 when they expected to be open for business. Three of the 6 intend to open brewpubs and the other three breweries with tap rooms.

Size Expectation: The square footage of floor space was planned to be in the 4,000 to 6,000 range and only one was planning on 1,000 square feet. Their expected customer capacity ranged from a high 200 to a low of 45.

How They Got Here: Regarding the question “How did you get started in this business?” five of the seven answered that they had started as a homebrewer or had previously worked for another brewer. One said, “Had no previous interest in brewing but thought this might be a good investment.” And the other bought the business from someone else.

3.4 Other Aspects of the Iowa Craft Brewing Industry

Beyond the breweries and brewpubs, the Iowa craft beer landscape includes companies that distribute the beer brewed in Iowa to retailers, suppliers of brewing equipment, homebrewers, and industry organizations.

Beer Distributors

According to Iowa Alcoholic Beverages Division beer tax reports, distributors sold almost 74 million gallons of beer to retailers during 2014. Of that amount only about 427,000 gallons (0.58%) consisted of craft beer produced in Iowa. However, this accounts for only part of Iowa craft beer sold off-premises. A number of Iowa’s craft breweries self-distribute.

During 2014, 33 licensed beer distributors operated in Iowa. Several of these companies operate out of two or more locations. Distributors operate under franchise laws within specific geographic territories. Iowa’s largest beer distributor is Doll Distributing, LLC (Council Bluffs, Des Moines, and Spencer). This company primarily handles Budweiser products, but during 2014 it also distributed Iowa craft beers produced by Backpacket, Court Avenue, Exile, Millstream, Olde Main, Raccoon River, and Rock Bottom brewing companies. The second largest Iowa distributor during 2014 was 7G Distributing (Cedar Rapids, Davenport, and Dubuque), which also primarily handles Budweiser products. During 2014 it distributed Iowa craft beers produced by Backpacket, Big Grove, Exile, Great River, Millstream, and Toppling Goliath breweries.

Other Iowa distributors that handle craft beer produced in the state include: Bemiss Distributing Company (West Union), Fahr Beverage (Waterloo), Fleck Sales (Cedar Rapids and West Burlington), Golden Eagle Distributing (Mt. Pleasant), H & F Distributing (Marshalltown), Humes Distributing (Fort Dodge), Ike Auen Distributing (Carroll), Iowa Beverage Systems (Des Moines), Kabrick Distributing (Mason City), United Beverage (Waterloo), and Wolfe Beverage (Eldridge).

According to the Iowa Wholesale Beer Distributors Association, Iowa’s beer distributors employ over 1,400 full-time workers and they pay over \$78.5 million in wages and benefits. The

association estimates the total economic impact of Iowa's beer distributors equals \$165.8 million. During 2014, beer distributors remitted over \$13 million in State beer excise tax.⁵⁷

Brewing Equipment and Ingredients Suppliers

The cost of starting a brewery varies with scale. For nanobreweries, ones that generally produce only from 10 gallons to three barrels per batch, equipment cost run about \$50,000. For a 7 to 10 barrel system production brewery start-up costs run in the neighborhood of \$250,000. For packaging and production breweries start-up costs can exceed \$1 million.⁵⁸

Although the respondent for one brewery indicated its brewing system was self-fabricated from components of unknown origin and another indicated its equipment was purchased from an Iowa winery, most of the survey respondents indicated they purchased their brewing systems from out-of-state companies.

Some of the major suppliers of brewing systems identified on the survey are:

- Stout Tanks and Kettles (Portland, OR)
- JVNW (Canby, OR)
- Meheen Manufacturing (Pasco, WA)
- In-Line Labeling (Charleston, SC)
- Specific Mechanical Systems (Victoria, BC, Canada)
- Premier Stainless Systems (Escondido, CA)
- Applied Beverage Technologies (Chicago, IL)
- Northern Brewer (Minneapolis, MN)
- MoreBeer (Concord, CA)

One brewery owner indicated that even though there are a number of brewery equipment fabricators in the United States most brewing vessels are manufactured in China because they can be manufactured at a much lower cost in that country.

Brewing ingredients similarly are obtained primarily from out-of-state suppliers. According to the survey less than 2% of the ingredients used in brewing, excluding water, (i.e., hops, grain, other brewing ingredients, and chemicals) come from Iowa suppliers. This is not surprising given that hops are primarily grown in Washington (74%), Oregon (14%), and Idaho (10%) and

⁵⁷ Iowa Wholesale Beer Distributors Association, <http://www.iwbda.org/facts/excise-taxes/>, accessed April 29, 2015.

⁵⁸ Teagarden, Danielle, "How Much Does it Cost to Start a Brewery?" <http://brewerylaw.com/2014/now-much-does-it-cost-to-start-a-brewery>, accessed April 25, 2015.

that barley is grown primarily in Idaho (27%), Montana (25%), and North Dakota (20%). However, the web site for Deb's Brewtopia (Elkader) says that the owner grows 17 varieties of hops. Also, news reports indicate that hops have been grown in Iowa near Newton and Oxford.

Homebrewers and Brewers Organizations

Seventeen of the 26 existing breweries and brewpubs that responded to the survey indicated they started out as homebrewers. Seven of the nine respondents that indicated some other path to entry into the brewing business are associated with brewpubs rather than production breweries. The stories of many national craft breweries reviewed in conjunction with this study indicate the Iowa experience is typical. From conversations with Iowa brewers making beer is a passion. Many of those who have moved from being a homebrewer to opening commercial breweries have pursued their new businesses with a sort of evangelical zeal driven by the desire to spread the gospel of great beer.

There do not appear to be any hard statistics on the number of homebrewers in the State, but some indication of the level of interest in this hobby comes from both the number of homebrew clubs and homebrew supply businesses. According to the American Homebrewers Association Iowa has 24 homebrewers clubs.⁵⁹ An umbrella organization for these Iowa clubs is the Iowa Brewers Union. The same site lists six Iowa homebrew supply shops.⁶⁰

Nationally, there are over 1,700 homebrewer clubs and about 500 homebrew supply businesses. One of the main homebrewers publications, Brew Your Own (BYO), provides some indication of the number of homebrewers there are in the country. This publication estimates that it has a readership of 97,500 and that homebrewers will spend over \$78 million on homebrew supplies and equipment during 2015. It estimates the typical homebrewer spends \$808 per year on equipment and supplies. Furthermore, it estimates that each of its readers advises another 5.5 people regarding the selection of homebrew equipment and supplies.⁶¹ This means the population of homebrewers likely exceeds over a half million individuals.

Given that Iowa only accounts for 0.2% of commercially brewed craft beer, about 1.4% of homebrewer clubs, and about 1.2% of homebrew supply stores, a realistic estimate of the number of homebrewers in Iowa probably runs between 1,100 and 7,500.

⁵⁹ American Homebrewers Association, <http://www.homebrewersassociation.org/community/clubs/find-a-homebrew-club/>, accessed May 13, 2015.

⁶⁰ American Homebrewers Association, <http://www.homebrewersassociation.org/how-to-brew/find-a-homebrew-supply-shop/>, Accessed May 13, 2015.

⁶¹ Brew Your Own, <http://byo.com/advertising>, accessed May 13, 2015.

The trade association for Iowa's commercial craft breweries is the Iowa Brewers Guild. The premier event that the Iowa Brewers Guild hosts to allow craft brewers to present their beers to Iowans and others is the Iowa Craft Beer Festival. The fifth annual festival will be held on the Court Avenue Bridge in Des Moines on June 20, 2015.

A number of festivals are held in other Iowa communities throughout the year. Among these are:

- Corridor Beer Festival (Cedar Rapids)
- Algona Beer Fest
- Urbandale Craft Beer and Food Fest
- Lazy River Beer and Wine Festival (Marquette)
- Cityview's Brewfest (Des Moines)
- Iowa State Fair Craft Beer Tent (Des Moines)
- Festival of Iowa Beers (Amana)



2014 Iowa Craft Beer Festival

Chapter 4: Economic Impact of the Craft Brewing Industry on Iowa



4.1 Iowa IMPLAN Model

IMPLAN is a widely-accepted and utilized software model developed by MIG, Inc. The model uses national industry data and county-level economic data to generate a series of multipliers that in turn estimate the total economic impacts of economic activity. At the heart of the model is a national input-output dollar flow table called the Social Accounting Matrix (SAM).

Unlike other static input-output models, which just measure the purchasing relationships between industry and household sectors, SAM also measures the economic relationships among government, industry, and household sectors, allowing IMPLAN to model transfer payments such as unemployment insurance. Thus, for the specified region, the input-output table accounts for all the dollar flows between the different sectors within the economy.

For this study, Strategic Economics Group used IMPLAN datasets for Iowa and the United States. The traditional indicators which economists use for measuring the economic importance of an activity include the size of its workforce and payroll, its capital investment and its local purchase of goods and services. Economists call these the 'direct expenditures' or 'direct effects'.

Direct effects refer to the operational characteristics (employment, payroll, sales) of the activities that were studied. The secondary effects include two components: indirect effects and induced effects.

Indirect effects measure the value of supplies and services that were purchased as inputs by the brewers from businesses and firms within the region. Induced effects occur when workers in the direct and indirect industries spent their earnings on goods and services from other vendors and businesses within the region.

Induced effects are also often called 'household effects'. The total economic impact is the aggregate of the direct, indirect and induced effects. It is the total effect on the economy of transactions that are attributable to the initial direct economic activity of the craft brewing businesses in Iowa.

But the workers and the vendors who receive those indirect and induced expenditures do not bury them in a mattress. They will spend some of the money and save some of it. Thus begins

the journey by which the dollars travel through many hands before they finally leave the economic region. Economists call this phenomenon the ‘multiplier effect’. The multiplier factor is calculated by dividing the sum of the direct, indirect and induced effects by the direct effect.

The project staff for this study employed the latest version of the IMPLAN model to determine the total impact of the direct expenditures made by the craft brewers in Iowa in 2014.

4.2 Measures of Economic Impacts

The project staff examined the impact on the Iowa economy using three metrics or indicators:

1. **Output Production** – a measure of the increased value of all goods, services and labor within the service area because of this economic activity. At the state level, it represents the growth that occurred in the State Gross Domestic Product due to craft brewing industry’s economic activities.
2. **Income** – the measure of increased personal income as a result of this economic activity.
3. **Jobs** – the estimate of job growth that this activity generated.

In each case – output, income and jobs – the total impact is the sum of the following factors:

1. **Direct Effect** – the initial economic activity of the industry that drives the subsequent effect on other sectors of the economy.
2. **Secondary Effects** – the resulting business-related effect on the vendors and employees of the industry (the indirect effect) and the consumer-related consequence of added payrolls and increased vendor purchases on other vendors (the induced effect) in the surrounding community as a result of the direct effect.

4.3 Supply Chain Impacts - The Mechanics of Linkages and Leakages

Also called the input impacts, this describes the degree to which goods and service purchases involve local vendors – in this case, in-state vendors. When input purchases are made from a local producer or vendor the dollars stay within the state and a portion of those dollars will continue to circulate through the network of local linkages. When inputs (like hops or grains or chemicals) are bought from an out-of-state vendor, then the dollars leak out of the state economy.

Economic impact models like IMPLAN are built on economic relationships that can be described by linkages and leakages. Linkages refer to the supply chain relationships for the materials and services employed in a project. The manufacturers and producers of those goods and services purchase their inputs from other manufacturers and service providers that in turn make purchases from other companies. This cycle of purchases continues until the entire initial expenditure dollars leak out of the region's economy.

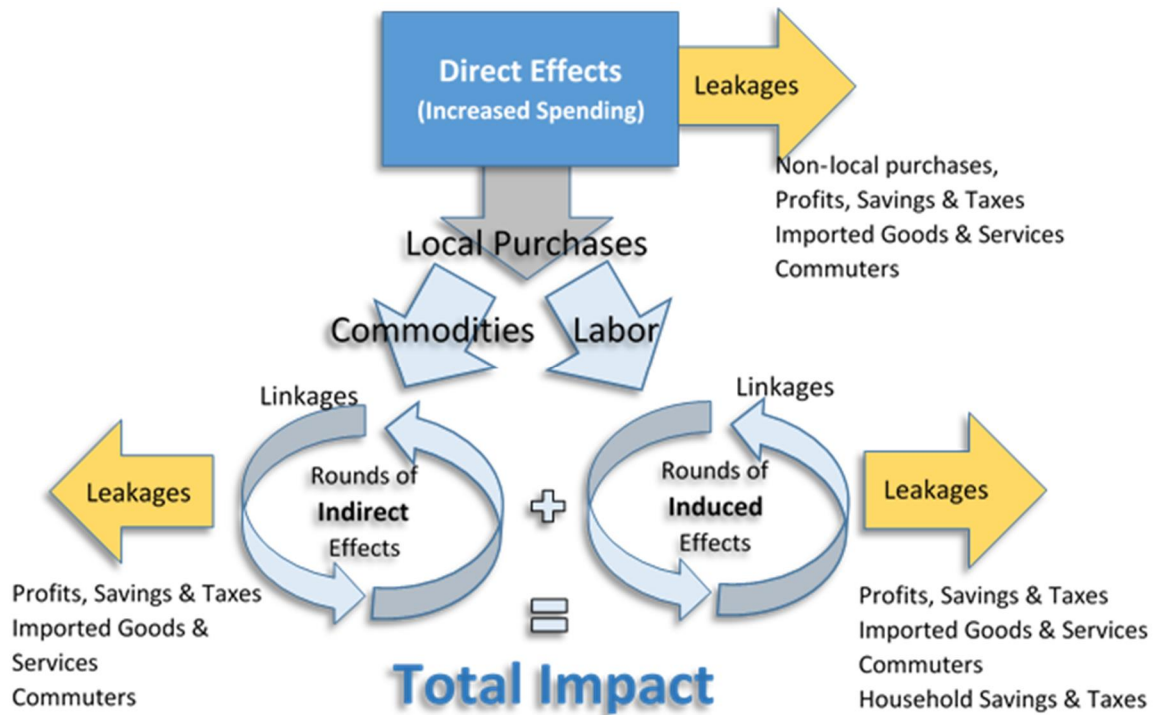
The input-output model identifies, for a point in time, all of the relationships between the outputs of all producers and inputs that they buy from other producers (linkages). The IMPLAN model identifies the backward supply chain linkages for 528 industries. In a hypothetical closed economy where all of the suppliers within a region only buy from other suppliers within the same region, the spending loop would be infinite as the spending of one firm would be the income of another and the dollars would keep circulating. But, we do not live in a closed loop economy.

As producers purchase from suppliers that are located outside of the region, some of the spending leaks out of the system (leakages). In this analysis, a large percentage of the inputs of brewers are purchased or manufactured outside of Iowa. Much of the equipment is manufactured outside of the United States and fabricated outside Iowa. Profits, savings, and net taxes are also part of the leakage. So, the initial infusion of spending will continue to generate economic activity within the region only until it is completely dissipated or leaked from the economy by imports (purchases from outside the region), profits (monies not spent within the region but paid to owners), savings, and net taxes (taxes minus government spending in the region).

Even a region as large as the entire United States will still experience leakages to the world economy. For an economic impact model to be meaningful, it is important to select a region that is small enough to bring the information to the relevant audience but large enough to minimize the amount of leakages. For this study the relevant region is the State of Iowa.

Figure 6 illustrates the relationship between linkages and leakages and the role of direct, indirect and induced effects.

Figure 6. Economic Impact Circular Flow Chart – Leakages and Linkages



4.4 Product Market Impacts

This concept describes the role of the purchaser. The brewer is positioned downstream of the input suppliers and upstream of the final product consumers. In some instances, there are also intermediaries known as distributors and retailers operate in the market between the producer and the consumer. Based on the responses to the 2015 Iowa Craft Brewer Survey, about 20% of the respondents indicated that they serve as their own distributor, or do not use a distributor. Sales reports published by the Iowa Alcoholic Beverages Division indicate that in 2014 eight production breweries and nine brewpubs in Iowa used a distributor for either in-state distribution or both in-state and out-of-state distribution of their output.

In 2014, the total production from Iowa breweries was about 40,800 barrels or more than 1.26 million gallons. About 82% of the production was sold within the State. The remainder of the Iowa produced craft beer was sold outside Iowa, mostly in neighboring states. The total production in 2014 was almost evenly split between the 28 native breweries and the 19 brewpubs for which data were available.

Table 17. 2014 Total Iowa Craft Beer Production

Category	No. of brewers	Share of total	Barrels sold			Total production in barrels	Share of total
			To Iowa retailers and customers	Through Iowa distributors	Outside of Iowa		
Breweries	28	60%	11,276	6,107	2,188	19,488	48%
Brew Pubs	19	40%	8,473	7,673	5,152	21,298	52%
Total	47	100%	19,749	13,773	7,341	40,786	100%
Share			48%	34%	18%	100%	

Source: Iowa Alcoholic Beverages Division, Strategic Economics Group

The responses to the 2015 Iowa Craft Brewer Survey indicated that salaries and wages (excluding benefits) accounted for about 30% of the 2014 expenditures. Nineteen respondents to the survey provided answers to the questions about their 2014 wages and salaries and the number of full- and part-time employees. Those answers showed an average wage in 2014 as low as \$150 and as high as about \$37,800. Twelve of the 19 respondents indicated that they paid themselves and their employees \$10,000 or less in 2014. The average wage and salary paid by the 19 was \$10,228 divided among an average of 15 employees.

The survey results also indicated that the 20 brewers and brewpubs purchased about \$5.1 million in direct inputs, about 29% of which came from Iowa vendors and service providers. Virtually none of the hops and grains were purchased from in-state providers and virtually none of their utilities were purchased from out-of-state. Table 18 shows the dollars spent and share of the total dollars spent in 2014 on inputs by the 20 craft brewers who shared their financial information on the survey.

The IMPLAN economic impact modeling was divided into two separate operations (1) brewing and (2) food and beverage service. All 47 of the production breweries and brewpubs were engaged in the manufacturing of beer. The 19 brewpubs were also in the business of operating a restaurant. All of the brewpubs sold the beer that they brewed to their retail customers. Also, some sold some of their beer wholesale to distributors or directly to bars and retail stores.

For that reason, three separate IMPLAN activities were included in the model: (1) the brewing function, (2) the restaurant function and (3) the retail sales function. The input drivers used in the models included non-labor expenditures for input purchases and payroll employment data identified in the 2015 survey and obtained from the Iowa Workforce Development Department, production level data reported monthly by the breweries and brewpubs to the Iowa Alcoholic

Beverages Division and the hours-of-operation listed by the breweries and brewpubs on their various social media web sites.

Table 20. Brewing Inputs Purchased by the 20 Craft Brewers Surveyed

Brewing Inputs	Input Purchases	Share of Total	Iowa Purchase	Share of Total	Iowa Share of Input Purchase
Hops	\$181,119	1.92%	\$40	0.00%	0%
Grains	\$568,291	6.02%	\$100	0.00%	0%
Other brewing ingredients	\$67,478	0.72%	\$13,292	0.18%	20%
Chemicals	\$62,944	0.67%	\$2,600	0.04%	4%
Utilities	\$318,634	3.38%	\$302,944	4.19%	95%
Distributing *	\$879,596	9.32%	\$141,482	1.96%	16%
Equipment maintenance	\$188,899	2.00%	\$166,768	2.30%	88%
Merchandise	\$192,274	2.04%	\$96,156	1.33%	50%
Food	\$1,049,400	11.12%	\$587,400	8.12%	56%
Labor	\$3,032,465	32.14%	\$3,032,465	41.90%	100%
Rent, prop. income, & other	\$2,893,634	30.67%	\$2,893,634	39.98%	100%
Total	\$9,434,734	100.00%	\$7,236,881	100.00%	77%

Includes labeling, packaging, distribution, and marketing

Source: Strategic Economics Group

In those instances where expenditure data was incomplete, Strategic Economics Group utilized multi-factor regression models to estimate the missing data. Table 19 identifies the variables that were used to estimate the brewing costs for the 47 production breweries and brewpubs, the additional food service costs for the 19 (of the 47) that are licensed as brewpubs, and the expenditures associated with the beer that was sold to distributors or directly distributed by the brewers to retailers and to retail customers.

The economic impact analysis used in this study examined the impact within the State of in-state production. The analysis and understanding the effects on the Iowa economy recognizes that some economic activity leaks out of the state when purchases of inputs are made from out-of-state vendors. Based on the responses to the 2015 Iowa Craft Brewer Survey, the overall local purchase coefficient used in the Iowa IMPLAN analysis was 66.47%.

Table 19. Variables Employed in Estimating Model

Operational Function	Variables
Production Breweries	
Brewing	Yes
Food Service	No
Tap Room	Some
Number of Establishments	47
Total Barrels Produced	40,786
Retail Hours-of-Operation	2,268
Total Brewing Expenditures	\$20,185,604
Brewpub Food Service	
Brewing	Yes
Food Service	Yes
Tap Room	No
Number of Establishments	19
Taxable Barrels Produced	21,298
Retail Hours-of-Operation	1,396
Total Food Service Expenditures	\$41,423,941
Retail Sales	
Brewing	No
Food Service	No
Tap Room	No
Number of Establishments	47
Total Barrels Sold	21,114
Retail Hours-of-Operation	N/A
Total Retail Sales Expenditures	\$10,472,405

Source: Strategic Economics Group

4.5 IMPLAN Model Variables

Using the spending inputs for the production breweries and brewpubs, the analysis shows that in 2014 the industry generated an estimated \$100 million of additional expenditures in Iowa, including the indirect and induced effects. The craft brewing industry in Iowa generated a total impact on the nation of \$184 million. The difference demonstrates the effect of input purchases from out-of-state and the resulting leakage of spending.

Tables 20 and 21 show the comparison between the economic impact of craft brewing in Iowa and the economic impact of Iowa's craft brewing industry on the nation.

Table 20. Economic Impact of Iowa Craft Brewers on Iowa, 2014

	Employment	Labor Income	Output
Direct Effect	1,283	\$31,198,907	\$65,939,631
Indirect Effect	82	\$4,259,255	\$14,517,114
Induced Effect	155	\$6,484,214	\$19,710,336
Total Effect	1,520	\$41,942,376	\$100,167,081

Source: Strategic Economics Group, IMPLAN Modeling

Table 21. Economic Impact of Iowa Craft Brewers on the U.S., 2014

	Employment	Labor Income	Output
Direct Effect	1,283	\$31,198,907	\$65,939,631
Indirect Effect	234	\$14,959,004	\$55,124,281
Induced Effect	393	\$20,489,561	\$62,532,979
Total Effect	1,910	\$66,647,473	\$183,596,891

Source: Strategic Economics Group, IMPLAN Modeling

Why wasn't all of the economic impact on the nation captured within the Iowa economy? It was because much of the inputs purchased by the craft brewers in Iowa were imported from other states and some from outside of the U.S. For example, hops, barley, some adjuncts and chemicals, many of the storage tanks and containers came from outside of the State. As a result, Iowa dollars leaked out of the economy.

Purchases from within the state, such as utilities, labor, food, and equipment maintenance created supply chain linkages that recirculated the in-state spending.

Table 22 shows the first of three measures generated by the IMPLAN model: the employment impact. In 2014 the craft brewers in Iowa were directly or indirectly responsible for an increase of 1,520 jobs in a broad range of industries. Most of those positions were directly involved in the craft brewing industry and the rest were affected indirectly (businesses purchasing from other businesses) and some were the result of induced spending by employees of the industry.

The second measure generated by the IMPLAN model was labor income. Labor income includes the value of all of the income received from employment, including employee compensation such as wages, salaries, benefits, as well as the income received by proprietors. It excludes receipts that were not work related such as dividends, interest, and rent.

Table 22. Employment Impacted by the Iowa Craft Brewing Industry, 2014

IMPLAN Sector	Description	Direct	Indirect	Induced	Total
	Total	1,283	82	155	1,520
413	Food services and drinking places	719	0	0	719
71	Breweries	508	0	0	508
324	Retail Stores - Food and beverage	56	0	7	64
360	Real estate establishments	0	7	6	13
319	Wholesale trade businesses	0	6	6	12
394	Physicians, dentists, health practitioners	0	0	10	10
397	Private hospitals	0	0	9	9
398	Nursing and residential care facilities	0	0	8	8
382	Employment services	0	5	3	8
329	Retail Stores - General merchandise	0	0	7	7
388	Services to buildings and dwellings	0	4	2	6
425	Civic, social, professional, and similar organizations	0	1	4	5
	All other sectors	0	58	93	151

Source: Strategic Economics Group, IMPLAN Modeling

Many of Iowa’s smaller breweries started as a home business by an enthusiastic hobbyist. Often those breweries have tap rooms that are open to the public for limited hours and are managed by part-time brewers who still maintain their day jobs. Since Iowa’s craft brewing industry is still in its early growth years, some establishments have yet to reach their full income potential.

For this reason, the \$42 million in labor income generated in 2014 is viewed as just a good starting point. Table 23 shows the industry’s impact in 2014 on labor income.

The third economic impact measure generated by the IMPLAN models is total output. Output is the measure of the change in industrial production for an economy. Table 24 shows that in 2014, Iowa craft brewers caused a \$100 million growth in the State’s industrial production.

Tables 25 - 27 show the same information by traditional Standard Industrial Classification categories.

Table 23. Labor Income Impacted by the Iowa Craft Brewing Industry, 2014 (\$Millions)

IMPLAN Sector	Description	Direct	Indirect	Induced	Total
	Total	\$31.2	\$4.3	\$6.5	\$41.9
413	Food services and drinking places	\$22.9	\$0.0	\$0.0	\$22.9
71	Breweries	\$6.7	\$0.0	\$0.0	\$6.7
324	Retail Stores - food and beverage	\$1.6	\$0.0	\$0.2	\$1.8
1	Oilseed farming	\$0.0	\$0.5	\$0.4	\$0.9
2	Grain farming	\$0.0	\$0.0	\$0.8	\$0.8
3	Vegetable and melon farming	\$0.0	\$0.0	\$0.6	\$0.6
4	Fruit farming	\$0.0	\$0.4	\$0.0	\$0.4
5	Tree nut farming	\$0.0	\$0.1	\$0.2	\$0.3
6	Greenhouse, nursery, and floriculture production	\$0.0	\$0.2	\$0.1	\$0.3
7	Tobacco farming	\$0.0	\$0.0	\$0.3	\$0.3
8	Cotton farming	\$0.0	\$0.2	\$0.1	\$0.2
9	Sugarcane and sugar beet farming	\$0.0	\$0.1	\$0.2	\$0.2
	All other sectors	\$0.0	\$2.9	\$3.7	\$6.5

Source: Strategic Economics Group, IMPLAN Modeling

Table 24. Economic Output Impacted by the Iowa Craft Brewing Industry, 2014 (\$Millions)

IMPLAN Sector	Description	Direct	Indirect	Induced	Total
	Total	\$65.9	\$14.5	\$19.7	\$100.2
413	Food services and drinking places	\$47.3	\$0.0	\$0.0	\$47.3
71	Breweries	\$15.2	\$0.0	\$0.0	\$15.2
324	Retail Stores - Food and beverage	\$3.4	\$0.0	\$0.4	\$3.8
1	Imputed rental activity for owner-occupied dwellings	\$0.0	\$0.0	\$3.0	\$3.0
2	Wholesale trade businesses	\$0.0	\$1.2	\$1.1	\$2.4
3	Real estate establishments	\$0.0	\$0.9	\$0.8	\$1.7
4	Monetary authorities and depository credit intermediation activities	\$0.0	\$0.5	\$1.0	\$1.5
5	Offices of physicians, dentists, and other health practitioners	\$0.0	\$0.0	\$1.3	\$1.3
6	Electric power generation, transmission, and distribution	\$0.0	\$0.8	\$0.4	\$1.3
7	Private hospitals	\$0.0	\$0.0	\$1.2	\$1.2
8	Insurance carriers	\$0.0	\$0.3	\$0.6	\$0.9
9	Telecommunications	\$0.0	\$0.4	\$0.5	\$0.9
	All other sectors	\$0.0	\$10.3	\$9.4	\$19.7

Source: Strategic Economics Group, IMPLAN Modeling

Table 25. Employment Impact of Iowa Craft Beer Industry

Description	Direct	Indirect	Induced	Total
Total	1,283	82	155	1,520
Agriculture	0	2	0	2
Mining	0	0	0	0
Construction	0	3	1	4
Manufacturing	508	7	2	517
TIPU	0	7	4	11
Trade	56	8	43	107
Service	719	51	103	872
Government	0	3	2	5

Source: Strategic Economics Group, IMPLAN Modeling

Table 26. Labor Income Impact of Iowa Craft Beer Industry
(\$Millions)

Description	Direct	Indirect	Induced	Total
Total	\$31.2	\$4.3	\$6.5	\$41.9
Agriculture	\$0.0	\$0.1	\$0.0	\$0.2
Mining	\$0.0	\$0.0	\$0.0	\$0.0
Construction	\$0.0	\$0.2	\$0.1	\$0.3
Manufacturing	\$6.7	\$0.4	\$0.1	\$7.2
TIPU	\$0.0	\$0.5	\$0.3	\$0.7
Trade	\$1.6	\$0.5	\$1.5	\$3.7
Service	\$22.9	\$2.2	\$4.3	\$29.5
Government	\$0.0	\$0.3	\$0.2	\$0.4

Source: Strategic Economics Group, IMPLAN Modeling

Table 27. Economic Output Impact of Iowa Craft Beer Industry
(\$Millions)

Description	Direct	Indirect	Induced	Total
Total	\$65.9	\$14.5	\$19.7	\$100.2
Agriculture	\$0.0	\$0.6	\$0.1	\$0.7
Mining	\$0.0	\$0.0	\$0.0	\$0.0
Construction	\$0.0	\$0.3	\$0.2	\$0.5
Manufacturing	\$15.2	\$3.6	\$1.0	\$19.9
TIPU	\$0.0	\$1.7	\$0.9	\$2.7
Trade	\$3.4	\$1.4	\$3.5	\$8.3
Service	\$47.3	\$6.4	\$13.6	\$67.4
Government	\$0.0	\$0.4	\$0.3	\$0.7

Source: Strategic Economics Group, IMPLAN Modeling

The economic impact analysis used in this study examined the impact within Iowa of the in-state production and sale of craft beer. The approach is useful in understanding the effects on the Iowa economy and recognizes that some economic activity leaks out of the State when purchases of inputs are made from out-of-state vendors. The analysis did not account for the effect of capital purchases or the amortization of buildings, equipment, and inventory stocks. These were excluded from the analysis because they were viewed as “sunk costs” arising from past investments. The local purchase coefficient of 66.4% used in the Iowa IMPLAN analysis was based on the responses in the 2015 Iowa Craft Brewers Survey.

The Brewers Association in a 2012 analysis completed for all the states estimated that the craft brewing industry had an economic impact in Iowa of \$329.3 million on output, \$101.9 million on labor income, and 3,745 on employment.

The 2012 Brewers Association economic impact study generally contained numbers that were substantially greater than economic impact studies published by academics, state entities and independent consultants using IMPLAN or REMI impact methodologies similar to those used in the current analysis. Table 28 shows comparison of some of the states that had studies which also resulted in numbers substantially lower than those published in the 2012 Brewers Association study.

Table 28. Comparing Brewers Association Study to State Studies

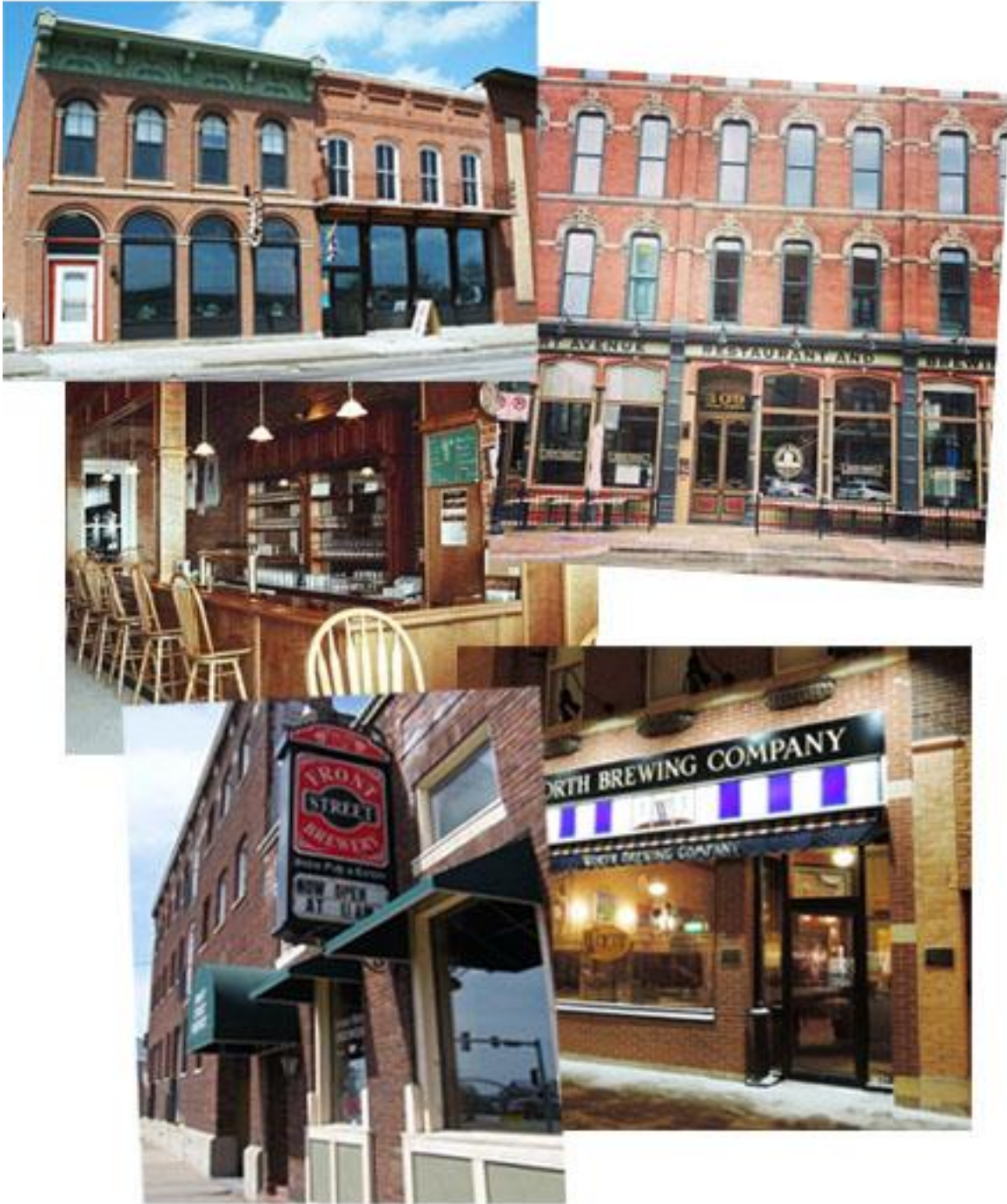
State	State Study		BA Analysis		Ratio BA/State	
	Jobs	Output (\$Mil.)	Jobs	Output (\$Mil.)	Jobs	Output
Iowa	1,520	\$100.2	3,745	\$329.3	2.5	3.3
Arizona	3,486	\$278.8	9,161	\$664.2	2.6	2.4
Colorado	5,800	\$445.9	19,251	\$1,634.2	3.3	3.7
Florida	4,082	\$432.6	10,905	\$875.8	2.7	2.0
Texas	6,351	\$608.3	20,171	\$2,316.2	3.2	3.8
Maine	1,500	\$189.0	3,460	\$327.7	2.3	1.7
Michigan	7,137	\$608.9	11,666	\$1,005.0	1.6	1.7
Montana	434	\$48.4	3,221	\$233.7	7.4	4.8

Source: Brewers Association, Strategic Economics Group

There are reasons for this difference. The BA study is a national analysis identifying each state's input into the national economy. State-level analyses have local purchase coefficients (measures of the share of total input purchases that will stay within the state), a national analysis captures a large portion of the leakage of spending from one state to the rest of the nation or the world.

To summarize, the economic impact of the Iowa craft brewing industry in 2014 resulted in an increase in the industrial production in Iowa by more than \$100 million, which generated more than 1,500 jobs and increased personal income by nearly \$42 million for Iowans.

Chapter 5: Iowa Craft Brewing Industry Community Involvement and Impacts



5.1 Community Involvement

Iowa's craft breweries have located in cities ranging in size from Des Moines (population 207,510) to West Okoboji (population 294). With the exception of a few brewpubs that are part of regional or national chains, one of the most interesting things about this industry is that each of the breweries and brewpubs has a unique character. Many have become entertainment destinations. Many have been instrumental in the preservation and revitalization of the cities and neighborhoods in which they have located. Similar to elsewhere in the country, there exists a symbiotic relationship between craft beer and bicycling in Iowa.

Beyond being physical and commercial attributes to their communities most Iowa craft breweries and brewpubs, their owners, and staffs play an activity role in the social fabric of their communities. The owners allow their facilities to be used for fundraisers. They and their employees participate in local Chambers of Commerce and other civic organizations. They participate in local and state festivals. And they help promote the Iowa craft beer industry.

This chapter draws on responses to the survey administered as part of this study to identify the different ways in which Iowa's craft breweries and brewpubs interact with their home communities. The survey asked the following questions pertaining to community involvement.

- Is your establishment a member of the local Chamber of Commerce?
- During 2014, did you or your employees give to charitable organizations?
- During 2014, did you or your employees participate in local festivals?
- During 2014, did you or your employees do volunteer work?
- During 2014, did you or your employees participate in fundraising events?
- During 2014, did your establishment support "buy local" initiatives?

The responses to these questions are summarized in Table 29. This table shows the responses separately for breweries and brewpubs located in metropolitan versus non-metropolitan cities.

As indicated in Chapter 3, only about half of the craft breweries and brewpubs in operation during 2014, responded to the survey. Although the survey responses are indicative of the level of community involvement by these businesses, the actual level of community involvement for all of the businesses in this industry likely vary somewhat from the survey responses.

Table 29. Community Involvement Survey Responses

Responses	Metropolitan			Non-Metropolitan		
	Yes	No	No Answer	Yes	No	No Answer
Chamber of Commerce Member	5	3	2	13	3	0
Donated to Charity	8	0	2	15	1	0
Participated in Local Festival	8	0	2	16	0	0
Volunteered	4	4	2	11	5	0
Participated in Fundraising	8	0	2	16	0	0
Supported "Buy Local" Initiative	6	2	2	16	0	0

Source: Strategic Economics Group

For the ten breweries and brewpubs located in metropolitan area cities five indicated they are Chamber of Commerce members. Thirteen of the 16 establishments located in non-metropolitan area cities indicated they belonged to their local Chamber of Commerce. For the metropolitan area establishments that answered the community involvement questions, all eight indicated they donated to charities, participated in local festivals, and participated in local fundraising activities. Among the breweries and brewpubs located in non-metropolitan cities all indicated that they participated in local festivals, participated in community fundraising, and support “buy local” initiatives. Also, 15 of the 16 non-metropolitan establishments indicated they or their employees donated to charities.

For the establishments located in both metropolitan and the non-metropolitan cities volunteering with local groups had the least number of positive responses. This is likely due to the long hours of work required to make their businesses successful, particularly during their first years of operation.

5.2 Examples of Community Involvement

Iowa’s craft breweries and brewpubs provide support to their communities in many ways. The most common types of support involve providing beer and merchandise for festivals and fundraisers. Also, many of the establishments either hosted fundraisers or allowed their establishments to be used for fundraisers hosted by various community or charitable groups. Another way in which Iowa’s breweries and brewpubs contribute to local causes involves sponsoring bike rides and fun runs.

In keeping with the innovative nature of the industry, a number of the breweries and brewpubs have come up with unique ways to give back to their communities. Some examples include:

- SingleSpeed Brewing Company (Cedar Falls) created a new beer, Whitewater Black Beer, to raise awareness and funds for a local whitewater park and created the beer Cooperate to support a food co-op.
- Rustic Brew (Hampton) provided space for school culinary classes as they prepared for a State culinary competition and lent their facility for the group’s dinner fundraiser.
- Lake Time Brewery (Clear Lake) and Albia Brewing Company (Albia) provided free samples of beer to benefit Honey Creek State Park and Resort.
- Peace Tree Brewery (Knoxville) sponsored a “build day” for Habitat for Humanity, as well as provided root beer for school events, sponsored tree planting, and was a sponsor for the Knoxville Hospital Gala.
- Millstream Brewing Company (Amana) holds two fundraisers each year to support local bike trails and donates a variety of items for charity auctions.
- Big Grove Brewery (Solon) holds a beer dinner to raise funds for a local food pantry.
- Brick Street Brewing Company (Woodbine) helps raise funds for local artists trying to start their own businesses.
- Mason City Brewing (Mason City) conducted “tip” drives to raise funds for Habitat for Humanity and for bike trail development. The tips left during these events went to the fundraiser with the company making up the difference for employees.



Chapter 6: Iowa Craft Brewing Industry Outlook



SINGLE SPEED BEER	
KUMQUATTA	56.52
SINGLEHOP CENTENNIAL	87.68
IPA BLANCO (1st round)	106.68
DUNKELWEIZEN	25.58
NEW MOON (BLAZE IPA 2nd round)	124.68
DUBBEL #2	25.72
# TWHEAT	51.71

GUEST BEER	
BEER COCKTAILS	
OPEN TO ALL	
PLEASE SUPPORT THE LOCAL	
SHANDY	
KUMQUACKTAIL	

4	PILSNER
4	SOAP CREEK SHANDY
6	DOOLEY'S RYE PORTER
6	MUDDY WATER
6	1889 RED ALE
4	OKTOBERFEST
6	VANILLA BOCK
6	COAL MINER
6	BLACK BETTY
7	CALL-A-CAB
7	HAZELNUT BRW ALE
7	BARREL-AGED RED ALE

BEERS ON	
Warrior Stout Brewed with molasses, 7.2% and oak chips (Res.)	ENGLISH PUB A Malty, mild hop bite
Nugget SMASH 5.6 Mild pale ale hints of fruit	COFFEE STOUT Dry Stout brewed w/ coffee
California Common 4.9 Lager fermented at Ale temp. 72 Caramel Malt made by Alameda	Lavender Honey Light bodied, floral, light malt, soft, subtle notes
APRICOT IPA (C) 6.2 Full bodied, moderately bitter, fairly overtones	Black IPA chocolate, roast fruit - pine, papaya
PINTS \$4 6oz. \$2 unless otherwise noted	FLIGHT (5 choice)
Millstream Soda \$2 rootbeer or cream soda	All Prices include sales tax

DOUBLE IPA
BACKROAD STOUT
SCHOKOLADE BOCK
WEIZENBOCK
HOPPY BELGIAN WIT
BIG HONEY WIT
AMANA, IOWA

MILLSTREAM BREWING CO.

AMANA, IOWA

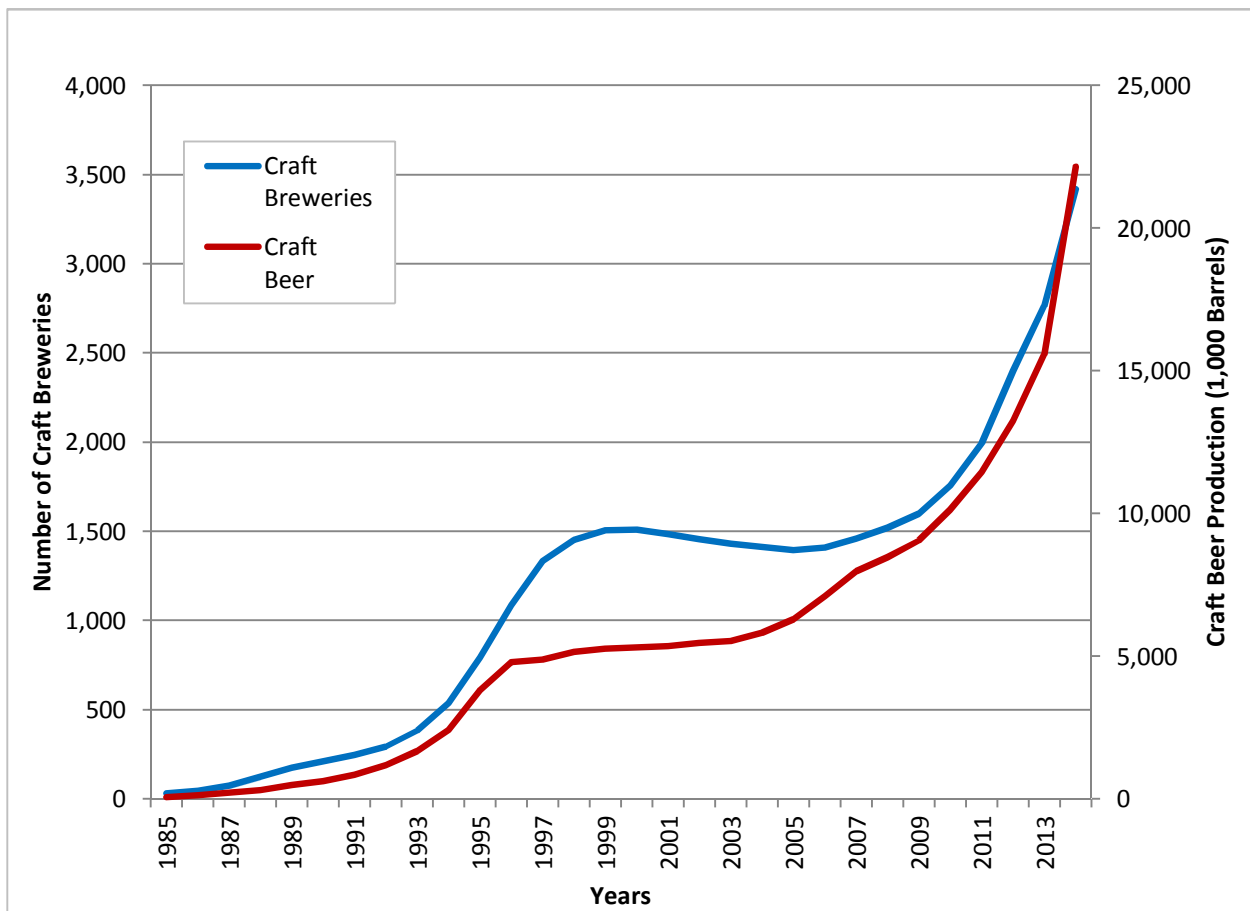
- IOWA PALE ALE
- HEFE R'WEISSE
- GERMAN PILSNER
- WINDMILL WIT
- SCHILD BRAU AMBER
- JOHN'S WHITE ALE

More All Iowa Tuesday Tap Takeovers

6.1 National Craft Beer Trends and Outlook

Nationally, the craft beer industry is experiencing impressive growth. As shown in Figure 7, since 1985 the craft beer industry has experienced two growth spurts. The first period occurred from 1992 to 1999 and the second period from 2006 to the present. During the first period the number of craft breweries grew from 295 to 1,506 (410.5%) and craft beer production over the same years grew from 1.19 million barrels to 5.27 million barrels (343.2%). During the second period the number of craft breweries grew from 1,409 to 3,418 (242.6%) and craft beer production grew from 7.10 million barrels to 22.16 million barrels (212.2%).

Figure 7: National Craft Beer Trends, 1985 - 2014



Sources: Brewers Association, Strategic Economics Group

As discussed in Chapter 3, during 2014 craft beer captured 11% of the U.S. total beer market as measured by volume and 19.3% of the market as measured by value. During 2014, overall U.S. beer production totaled 197.1 million barrels and sales totaled \$101.5 billion.⁶² As recently as 2010, craft beer production equaled only 5.0% of total beer production in the country.

Although goals are often not realized the craft beer industry's trade group, the Brewers Association, is promoting the view that craft beer can capture a 20% production share of the total U.S. beer market by the year 2020.⁶³ Whether this goal is achieved will be influenced somewhat by the definition of craft brewing and by extension membership in the "club" in five years. Up until 2010 the maximum production level limit used to define craft breweries was 2 million barrels per year. The Brewers Association raised that limit to 6 million barrels per year in order to accommodate Boston Beer the brewer of Samuel Adams. Conversely, the criterion of no more than 25% ownership by large brewers, such as Anheuser-Busch InBev and SABMiller, has resulted in numerous craft brewers leaving the Brewers Association membership. Among these are Chicago's Goose Island, Blue Point (Patchogue, NY), 10 Barrel (Bend, OR), Elysian (Seattle, WA), and Founders (Grand Rapids, MI).⁶⁴

Consolidation among craft brewers is also reshaping the industry. For example, Harpoon Brewery (Boston, MA) and Abita Brewing (Abita Springs, LA) teamed up with private equity firm Friedman, Fleischer and Lowe (FFL) to form Enjoy Beer, and this group intends to purchase additional craft breweries. Other private equity firms have recently purchased stakes in Southern Tier Brewing Company (Lakewood, NY), SweetWater Brewing Company (Atlanta, GA), Uinta Brewing Company (Salt Lake City, UT), and Full Sail Brewing Company (Hood River, OR).⁶⁵ But as of now these breweries continue to satisfy the craft brewery definition.

Since overall beer sales are only growing slightly, growth of the craft beer share will have to come at the expense of large non-craft beer sales. Whether this trend will continue depends at least partly on the demographics of craft beer drinkers.

An analysis of beer preferences by research firm Technomic during 2014 found that "consumers are gravitating toward more flavorful and stylistically unique beers, evidenced by the growth of

⁶² Brewers Association, <https://www.brewersassociation.org/statistics/national-beer-sales-production-data/>, accessed May 24, 2015.

⁶³ Notte, Jason, "Why Craft Will Be Almost Unrecognizable by the Year 2020," <http://www.mainstreet.com/article/why-craft-beer-will-be-almost-unrecognizable-by-the-year-2020>, accessed May 23, 2015.

⁶⁴ Ibid.

⁶⁵ Ibid.

imported and craft beer – as well as expansion in flavored malt beverage and cider – and the contraction in mainstream domestic regular and light beer.”⁶⁶

Technomic explains this shift has been at least partially due to the recent recession that had a significant impact on traditional mainstream domestic beer consumers. At the same time other consumers traded up to higher priced craft, imported, and super-premium beers. In addition, their research found that younger consumers drink a range of adult beverages, which puts beer in competition with cocktails, mixed drinks, table and sparkling wines.⁶⁷

Another market research firm, Mintel, has found that the “sweet spot” within the craft beer demographic is the 25 to 34 years age group. It found that while 36% of all U.S. consumers drink craft beer among older Millennials (25 to 34 year olds) 50% drink craft beer. Furthermore, it found that 43% of both Millennials and Generation X consumers say craft beer tastes better than traditional domestic beer, compared to 32% for Baby Boomers.⁶⁸ The reason this demographic is important is that Millennials number 80 million versus 50 million for Generation X and about 76 million surviving Baby Boomers.⁶⁹ Also, craft beer appeals more to younger women than do traditional domestic beers.

A final demographic factor that favors craft beer over traditional domestic beer is the desire of many younger consumers to support local businesses.

Other factors that will influence the growth prospects for craft beer sales include the production capacity of craft breweries and the availability and cost of ingredients required to brew craft beer. An analysis done by Bart Watson, Brewers Association economist, found that current craft beer production equals about 64% of capacity. That may sound low, but at current growth rates he estimates that capacity could be fully utilized within three years. Furthermore, he found that the lowest utilization rates are found in the smallest breweries (0 to 5,000 barrels per year of output) where capacity utilization equaled about 45%, but these breweries are experiencing production growth of 29% per year.⁷⁰ This means there exists room for new entrants into the industry.

⁶⁶ Technomic, “For Beer, a ‘Perfect Storm’ Benefits Some Brands, Threatens Others,” http://www.technomic.com/Pressroom/Releases/dynRelease_Detail.php?rUID=w324, accessed April 21, 2015.

⁶⁷ Ibid.

⁶⁸ Baby Boomer were born between 1946 and 1964, Generation-X includes individuals born between the early 1960s to early 1980s, and Millennials include individuals born between 1980 and 2000.

⁶⁹ Mintel, “The Rise of Craft Beer in the U.S.,” <http://www.mintel.com/press-centre/food-and-drink/the-rise-of-craft-beer-in-the-us-craft-beer-sales-have-doubled-in-the-past-six-years-and-are-set-to-triple-by-2017>, accessed May 24, 2015.

⁷⁰ Watson, Bart, “Craft Brewer Capacity,” <https://www.brewersassociation.org/insights/craft-brewer-capacity>, accessed May 24, 2015.

What may constrain new entrants is tight supplies of grain and hops. Unlike when the industry was beginning, new brewers now need to have contracts for their malt and hops. Without such long-term agreements with suppliers, new brewers may find needed ingredients in short supply and expensive to obtain. Furthermore, the prices for grain and hops can be subject to substantial fluctuation due to supply disruptions in agricultural markets. Because barley is used for animal feed, changes in the supply of corn, wheat, and soybeans impact barley prices. For example, during 2010 the price of barley doubled from about \$3 per bushel to over \$6 per bushel.⁷¹ Similarly, due to a poor harvest the price of hops jumped from between \$3 and \$5 per pound in 2006 to between \$15 and \$20 per pound in 2007.⁷²

Recently, malting barley cost between \$5.40 and \$5.50 per bushel. The average commodity price of hops during 2014 equaled \$3.83 per pound.

6.2 Iowa Craft Brew Trends and Outlook

The only trend data that exists for Iowa pertains to the number of craft breweries and brewpubs. (See Figure 2 in Chapter 2.) For the years 1992 through 1999 the number of Iowa craft breweries and brewpubs grew from 4 to 10 (150%) and from 2006 to 2014 the number grew from 15 to 55 (366.7%).

A number of factors may be expected to influence the growth prospects for Iowa's craft beer industry over the next five years. The most important of these factors include:

- Increased production by existing craft breweries and brewpubs,
- The number of new craft breweries and brewpubs that may be expected to open, and
- Increased demand for craft beer by consumers.

This study relies on three sources of information to assess the prospects for growth of the Iowa craft beer industry. First, the survey conducted as part of this study asked brewers and brewpub managers to estimate their expected growth in production over the next year. Second, insights into the industry were gathered from a small number of brewery owners.

⁷¹ Godard, Thierry, "The Economics of Craft Beer," <https://smartasset.com/omsights/the-economics-of-craft-beer>, accessed May 24, 2015.

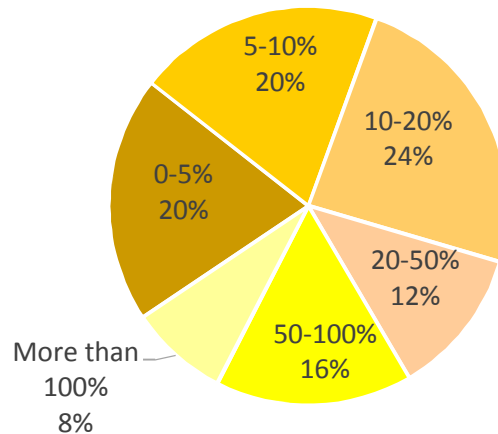
⁷² Neuzil, Mark, "Price for Hops Used to Make Beer is Going Up, and You Know What That Means," <http://www.minnpost.com/environment/2008/01/price-hops-used-to-make-beer-going-and-you-know-what-that-means>, accessed May 24, 2015.

Third, statistical data on craft brewing industry trends were compiled for the 50 states and the District of Columbia.

Survey Findings

Twenty-five establishments responded to the survey question regarding anticipated production growth over the next year. These survey responses are summarized in Figure 8. They revealed that five establishments expected little growth in the range of 0% to 5%. Looking at these establishments no common characteristics are apparent. The oldest opened in 1996 and the newest opened in 2013. Three are located in rural county seat cities, one in a lake resort city, and the other in a metropolitan area. According to Alcoholic Beverage Division records, four of these establishments are brewpubs and one is a native brewery.

Figure 8. 2015 Growth Expectations



Source: 2015 SEG Craft Brewer Survey

Five establishments expected their craft beer sales to increase between 5% and 10% during 2015. Again, there is little commonality among this group. Four are brewpubs and one is a native brewery. Two are located in metropolitan areas, two are in county seat cities, and one is located in a rural tourist area. Their number of years in business range from one to 30.

Six establishments expected their beer sales to increase between 10% and 20% during 2015. This group includes two brewpubs and four breweries. Three are located in metropolitan areas and three in non-metropolitan county seat cities. The oldest of this group opened for business in 2006 and the newest opened in 2014.

Three breweries expected their beer sales to grow by between 20% and 50% during 2015. One of these establishments is located in a Des Moines suburb and the two others are located in small towns with populations under 7,500. One opened for business during 2009 and the other two opened during 2012.

The four establishments that estimated growth between 50% and 100% during 2015 are all licensed as native breweries and three have tap rooms. Also, three of these establishments are located in the Des Moines metropolitan area and the other one is located in a lake community. All of these establishments opened for business between 2012 and 2014.

The final two establishments that responded to the survey expect their sales to more than double during 2015. Both of these establishments are breweries with tap rooms and during 2014 produced less than 150 barrels of beer each. Also, both are located in rural communities but are within close proximity to metropolitan areas.

Taking the weighted average of the growth expectations for the 25 breweries and brewpubs that responded to this question on the survey yields low, high, and mean growth rate estimates for 2015 of 18.3%, 37.9%, and 28.1%, respectively. These growth rates are quite comparable to those derived for smaller craft breweries nationally, which range between 16% and 29%.

For some of Iowa's larger production breweries that did not respond to the survey, media accounts shed light on their growth prospects. For example, the *Sioux City Journal* reported in April that Toppling Goliath (Decorah) signed an agreement with Brew Hub (Lakeland, FL) to brew a number of Toppling Goliath's signature beers for which it cannot meet demand at its Decorah brewery. This will allow the company to increase production from the 3,700 barrels it produced during 2014 to almost 20,000 barrel, a 441% increase.⁷³ This agreement will allow Toppling Goliath to increase distribution in Iowa, Illinois, and Wisconsin and to begin distribution in Minnesota and Florida.

Iowa's largest craft brewery, as measured by barrels produced during 2014, was Backpocket Brewing located in Coralville. According to Iowa Alcoholic Beverage Division reports, it

⁷³ *Sioux City Journal.com*, "Brew: Toppling Goliath Signs with Brew Hub; Will Expand Distribution," http://siouxcityjournal.com/blogs/brew/brew-toppling-goliath-signs-with-brew-hub-will-expand-distribution/article_fcf1a3fb-2b39-5091-a56d-65fd4e45edb7.html, accessed April 28, 2015; This article indicates that Toppling Goliath produced about 3,200 barrels of beer during 2014, but Iowa Alcoholic Beverages Division tax reports show production totaled 3,766 barrels.

produced over 9,200 barrels of beer. When this brewery opened in 2012 press accounts indicated it would have the capacity to eventually produce 25,000 barrels per year.⁷⁴

Beyond increased production by existing breweries, ten or more new establishments may be expected to open over the next two years. No information currently exists regarding the anticipated production levels for these new breweries. However, the production levels of other recently opened breweries provide some indication of what may be expected. Based on data obtained from the Iowa Alcoholic Beverages Division, the average number of barrels produced by breweries that opened during 2010, 2011, 2013, and 2014 equals 200. Most of these planned breweries and brewpubs have chosen to locate in or near metropolitan areas. So, they will be serving fairly large markets.

Site Visits

Visits to three Iowa breweries – 515 Brewing, Confluence, and Peace Tree – also revealed that demand for Iowa craft beer is generally outpacing production. Consequently, each of these businesses expects to see the amount of beer they produce to increase over the next several years. Two of the three indicated that within a few years they expect to reach the capacity of their existing brew houses and fermentation tanks. Additional bottling and possibly canning equipment may necessitate expanding the size of their current facilities. None of the three breweries indicated they have experienced problems obtaining sufficient beer-making ingredients. None of the three has found access to financing to be a constraint on their growth.

Although nationally, the primary clientele for craft beer consists of middle and upper income Millennials, the proprietors of these three breweries indicated their customers range in age from the mid-20s to early 70s. Also, although the Iowa establishments attract a large number of professionals, they also attract a blue and grey collar clientele.

Other States Comparisons

The Brewers Association compiled 2012 data pertaining to craft breweries and craft beer production. Similarly, the Beer Institute, which is a trade organization that represents the entire beer industry, compiled 2012 data for total beer shipments and beer consumption by individuals age 21 and older. These data sets cover the 50 states and the District of Columbia.

Combining these data sets provides a means for making several comparisons among the 51 jurisdictions. These comparisons include:

⁷⁴ Weber, Carly, "Backpocket Brewing Opens Tap Room in Coralville," KCRG.com, <http://www.kcrg.com/news/local/Backpocket-Brewing-Opens-Tap-Room-in-Coralville-158244825.html>, accessed May 25, 2015.

- Craft beer consumption per capita for population age 21 and older,
- Total beer consumption per capita for population age 21 and older, and
- Average beer production per craft brewery.

These comparisons along with rankings for each are presented in Tables 30 and 31. Table 30 presents for each jurisdiction:

- Number of craft breweries,
- Craft beer production in barrels,
- Total beer shipments in barrels,
- Population age 21 and older,
- Craft beer consumption per capita in gallons, and
- Total beer consumption per capita in gallons.

Table 31 presents for each jurisdiction:

- Craft beer consumption share,
- Craft beer consumption per capita rank,
- Average craft beer production per brewery in barrels,
- Average craft beer production per brewery rank, and
- Total beer consumption per capita rank.

During 2012, Iowans age 21 and older consumed 33.65 gallons of beer in total per capita, but they consumed only 0.41 gallons of craft beer per capita. Thus, for Iowa craft beer consumption equaled only 1.2% of total beer consumption. Nationally, during 2012 per capita total beer consumption equaled 28.17 gallons and per capita craft beer consumption equaled 2.13 gallons. So, nationally craft beer accounted for 7.6% of total beer consumption.

This comparison shows that Iowans age 21 and older consumed 19.5% more beer in total per capita than the national average, but Iowans' average craft beer consumption equals only 19.2% of the national average. These numbers imply that there exists considerable room for the growth of craft beer consumption in the State. To reach the national per capita average, Iowa craft beer consumption would have to increase by 420%. If this were to occur, the amount of craft beer consumed in Iowa would increase from 33,446 barrels to over 170,000 barrels.

Table 30. State Craft and Total Beer Production and per Capita Consumption, 2012

State	Number of Craft Breweries	Craft Beer Production (barrels)	Total Beer Shipments (barrels)	Population 21 Years +	Craft Beer Consumption per Capita (gallons)	Total Beer Consumption per Capita (gallons)
Alabama	13	32,531	3,405,054	3,495,392	0.29	30.20
Alaska	22	182,530	475,298	513,228	11.03	28.71
Arizona	47	117,457	4,436,917	4,663,900	0.78	29.49
Arkansas	13	10,417	1,823,822	2,119,568	0.15	26.67
California	381	2,948,895	22,317,858	27,136,252	3.37	25.50
Colorado	175	1,413,242	3,628,449	3,743,962	11.70	30.04
Connecticut	23	51,457	1,883,859	2,637,510	0.60	22.14
Delaware	10	211,280	727,676	671,947	9.75	33.57
District of Columbia	9	14,889	445,508	488,490	0.94	28.27
Florida	66	129,946	12,881,385	14,587,186	0.28	27.37
Georgia	28	207,257	5,795,422	6,994,011	0.92	25.69
Hawaii	8	25,082	1,018,000	1,037,311	0.75	30.42
Idaho	34	43,073	987,314	1,102,202	1.21	27.77
Illinois	83	136,999	8,708,195	9,268,030	0.46	29.13
Indiana	63	120,828	3,885,980	4,652,578	0.81	25.89
Iowa	40	29,417	2,397,885	2,209,302	0.41	33.65
Kansas	20	33,051	1,852,707	2,031,369	0.50	28.27
Kentucky	15	52,639	2,509,430	3,186,609	0.51	24.41
Louisiana	11	184,577	3,600,357	3,293,112	1.74	33.89
Maine	47	259,654	1,108,492	1,010,315	7.97	34.01
Maryland	34	171,470	3,216,919	4,298,739	1.24	23.20
Massachusetts	57	329,413	4,169,574	4,932,640	2.07	26.20
Michigan	131	582,909	6,219,773	7,184,978	2.51	26.84
Minnesota	52	367,681	3,564,936	3,878,373	2.94	28.49
Mississippi	4	17,560	2,300,737	2,105,729	0.26	33.87
Missouri	49	299,214	4,362,037	4,362,875	2.13	30.99
Montana	39	133,465	978,877	740,965	5.58	40.95
Nebraska	22	24,467	1,487,657	1,308,461	0.58	35.25
Nevada	22	46,729	2,302,338	1,995,542	0.73	35.77
New Hampshire	22	69,164	1,397,740	986,074	2.17	43.94
New Jersey	26	48,996	4,691,905	6,496,123	0.23	22.39
New Mexico	31	58,247	1,551,902	1,483,933	1.22	32.42
New York	165	859,535	10,459,229	14,475,962	1.84	22.40

Table 30. State Craft and Total Beer Production and per Capita Consumption, 2012 (continued)

State	Number of Craft Breweries	Craft Beer Production (barrels)	Total Beer Shipments (barrels)	Population 21 Years +	Craft Beer Consumption per Capita (gallons)	Total Beer Consumption per Capita (gallons)
North Carolina	91	263,488	6,167,486	7,048,067	1.16	27.13
North Dakota	6	1,866	753,150	509,226	0.11	45.85
Ohio	76	1,097,955	8,153,103	8,396,361	4.05	30.10
Oklahoma	13	21,029	2,481,159	2,713,986	0.24	28.34
Oregon	181	877,891	2,824,541	2,887,855	9.42	30.32
Pennsylvania	108	1,788,556	8,734,643	9,463,602	5.86	28.61
Rhode Island	8	12,218	661,213	778,808	0.49	26.32
South Carolina	20	46,900	3,631,748	3,439,725	0.42	32.73
South Dakota	10	4,008	742,952	591,547	0.21	38.93
Tennessee	35	98,508	3,971,793	4,704,160	0.65	26.17
Texas	96	848,259	19,889,355	17,934,667	1.47	34.38
Utah	16	130,790	1,194,026	1,836,271	2.21	20.16
Vermont	29	229,062	534,524	468,943	15.14	35.34
Virginia	61	129,103	5,144,231	5,981,454	0.67	26.66
Washington	201	333,175	4,029,277	5,041,656	2.05	24.78
West Virginia	7	19,542	1,367,366	1,399,038	0.43	30.30
Wisconsin	90	444,311	4,859,589	4,160,398	3.31	36.21
Wyoming	18	15,863	443,659	417,034	1.18	32.98
Totals	2,828	15,576,595	206,177,047	226,865,466	2.13	28.17

Sources: Brewers Association, Beer Institute, Strategic Economics Group

Table 31. State Craft Beer Rankings, 2012

State	Craft Beer Consumption Share	Craft Beer per Capita Consumption Rank	Average Craft Beer Production per Brewery (barrels)	Average Craft Beer Production per Brewery Rank	Total Beer Consumption per Capita Rank
Alabama	0.96%	46	2,502	29	22
Alaska	38.40%	3	8,297	6	27
Arizona	2.65%	31	2,499	30	25
Arkansas	0.57%	49	801	48	37
California	13.21%	10	7,740	10	44
Colorado	38.95%	2	8,076	8	24
Connecticut	2.73%	30	2,237	32	50
Delaware	29.03%	5	21,128	1	14
District of Columbia	3.34%	28	1,654	40	32
Florida	1.01%	45	1,969	35	34
Georgia	3.58%	26	7,402	11	43
Hawaii	2.46%	34	3,135	25	19
Idaho	4.36%	22	1,267	45	33
Illinois	1.57%	40	1,651	42	26
Indiana	3.11%	29	1,918	36	42
Iowa	1.23%	43	735	49	13
Kansas	1.78%	38	1,653	41	31
Kentucky	2.10%	35	3,509	22	46
Louisiana	5.13%	20	16,780	2	11
Maine	23.42%	6	5,525	15	10
Maryland	5.33%	19	5,043	17	47
Massachusetts	7.90%	17	5,779	14	40
Michigan	9.37%	13	4,450	20	36
Minnesota	10.31%	12	7,071	12	29
Mississippi	0.76%	48	4,390	21	12
Missouri	6.86%	18	6,106	13	18
Montana	13.63%	8	3,422	23	3
Nebraska	1.64%	39	1,112	46	8
Nevada	2.03%	36	2,124	33	6
New Hampshire	4.95%	21	3,144	24	2
New Jersey	1.04%	44	1,884	37	49
New Mexico	3.75%	25	1,879	38	17
New York	8.22%	16	5,209	16	48

Table 31. State Craft Beer Rankings, 2012 (continued)

State	Craft Beer Consumption Share	Craft Beer per Capita Consumption Rank	Average Craft Beer Production per Brewery (barrels)	Average Craft Beer Production per Brewery Rank	Total Beer Consumption per Capita Rank
North Carolina	4.27%	23	2,895	26	35
North Dakota	0.25%	51	311	51	1
Ohio	13.47%	9	14,447	4	23
Oklahoma	0.85%	47	1,618	43	30
Oregon	31.08%	4	4,850	19	20
Pennsylvania	20.48%	7	16,561	3	28
Rhode Island	1.85%	37	1,527	44	39
South Carolina	1.29%	42	2,345	31	16
South Dakota	0.54%	50	401	50	4
Tennessee	2.48%	33	2,815	27	41
Texas	4.26%	24	8,836	5	9
Utah	10.95%	11	8,174	7	51
Vermont	42.85%	1	7,899	9	7
Virginia	2.51%	32	2,116	34	38
Washington	8.27%	15	1,658	39	45
West Virginia	1.43%	41	2,792	28	21
Wisconsin	9.14%	14	4,937	18	5
Wyoming	3.58%	27	881	47	15
Totals	7.55%		5,508		

Sources: Brewers Association, Beer Institute, Strategic Economics Group

Other states, and particularly those in close proximity to Iowa, provide additional perspective on the prospects for craft beer production and consumption growth for the State. For Iowa and its six border states (Illinois, Minnesota, Missouri, Nebraska, South Dakota, and Wisconsin), total annual beer consumption per capita equals 31.41 gallons. This is above the national average of 28.17 gallons by 3.24 gallons (11.5%). On the other hand, annual craft beer consumption in these seven states equals 1.57 gallons per capita, which is 0.56 gallons (26.3%) below the national average of 2.13 gallons. Craft beer's market share for these states equaled 5.01% compared to the national market share of 7.55%.⁷⁵

In terms of production, according to the Brewers Associations, 346 craft breweries and brewpubs existed in the seven states. The average production of craft beer by these establishments during 2012 equaled 3,775 barrels.

Iowa Craft Beer Production and Consumption Projections

Projections of total craft beer production and in-state sales by Iowa breweries reflect growth expectations indicated on the survey undertaken as part of this study. In addition, Iowa Alcoholic Beverage Division (ABD) license documents and excise tax returns provide the basis for estimating the number of new establishments likely to open for business over the next five years and their level of beer production. The projections made using these data sources are compared to regional averages to test their reasonableness.

For existing breweries and brewpubs beer production was projected to grow at a rate of 28% per year from 2014 through 2019. This growth rate equals the mean growth rate expectation for existing breweries and brewpubs that responded to the survey. New breweries and brewpubs are assumed to be established at a rate of five per year with average beer production the first year of operation equaling 200 barrels each. In subsequent years beer production of the new establishments is projected to grow at the rate of 28% per year.

Table 32 presents 2014 actual activity and the projections by year from 2015 through 2019. In addition to total production, the table presents a division between in-state and export sales. However, this split simply equals the split that existed for 2014 based on ABD excise tax returns. This split equals 82% in-state and 18% export.

Overall, the projections anticipate the amount of craft beer produced in Iowa rising from 40,786 barrel during 2014 to 146,545 barrels by 2019, which equals a 259% increase. The

⁷⁵ The Brewers Association and Beer Institute data are both from 2012 studies.

estimated amount of Iowa produced craft beer that will be consumed in 2019 by Iowans equals 120,172 barrels (3,725,332 gallons). Assuming the State’s population age 21 and older remains unchanged, per capita craft beer consumption will increase to 1.69 gallons, which is slightly above the 2012 average for Iowa and its border states (1.57 gallons), but still 0.44 gallons (20.7%) below the 2012 national average. In addition, even at this higher rate of consumption craft beer will account for only about 5% of total beer consumption by Iowans, which equals the 2012 regional average. This market share will leave Iowa’s craft beer consumption in 2019 still 2.55 percentage points below the 2012 national average.

Table 32. Iowa Craft Beer Projections

Year	All Establishments (barrels)		
	Production	In-State Sales	Export Sales
2014	40,786	33,446	7,340
2015	53,206	43,631	9,575
2016	69,104	56,668	12,436
2017	89,173	73,125	16,048
2018	114,503	93,896	20,606
2019	146,545	120,172	26,373

Source: Strategic Economics Group

Given the close correspondence of the projections to recent regional averages provides support for their reasonableness. The fact the projections leave Iowans’ craft beer consumption per capita and as a share of total beer sales below the national averages provide additional support.

One final comparison is the average production per brewery. During 2012 average production per Iowa brewery and brewpub equaled 735 barrels. This compares to a national average of 5,508 barrels and a regional average of 3,775 barrels. Iowa’s production rank that year equaled 49th out of the 50 states and the District of Columbia. For 2014 Iowa breweries and brewpubs produced an average of 816 barrels. At the projected 2019 level of production the average will equal 1,954 barrels.

In summary, beer production by Iowa’s craft breweries and brewpubs can reasonably be expected to increase from the 2014 level of 40,786 barrels to over 146,000 barrels by 2019. Also, the in-state consumption of craft beer can be expected to increase over the same period from 33,446 barrels to 120,000 barrels. Both increases equal 259% over the five years. This growth would increase Iowa’s craft beer market share to 5.01% from its current 1.23% share.

Appendices

Appendix A. Iowa Craft Brewers Survey Questionnaire

Appendix B. Craft Beer Industry Glossary

Appendix C. IMPLAN Input-Output Model Glossary

Appendix A. Iowa Craft Brewers Survey

Contact Information	
What is the job(s) that you perform in the business?	
How did you get started in this business?	
How many breweries and/or brew pubs do you own or operate in Iowa?	
Do you own or operate any breweries and/or brew pubs outside of Iowa?	
In what states are your other brewing businesses located?	
When was this business established?	
What is the total square footage of this establishment?	
For retail establishments, what is the maximum customer capacity for this location?	
What is the nature of your business at this location (check all that apply)?	Production brewery
	Tap room
	Brew pub
	Full-service restaurant with bar
	Live entertainment
	Other (please specify)
For retail establishments, what days are you open to the public?	
Do you own or rent the building in which your establishment is located?	
What was the dollar amount of initial investment for this location?	
Have you substantially increased your investment in this location since it open for business?	
Regarding your establishment's expansion:	In what year or years was the expansion completed?
	What was the total dollar amount of the new investment(s)?
What is the brewing capacity of your brewery equipment (barrels per batch)?	
Does your establishment brew its beer on-site or at another location?	
Describe the method or technique by which your brewing is done at an external site and delivered to you.	
During 2014:	How many barrels of beer did your brewery produce?
	What was your gross revenue?
	What was your total expenditures?
	What was your total wages and salaries paid (excluding benefits)?
Projecting your 2015 sales increase of 2014, what percent growth are you expecting?	
Estimate the percentage of your 2014 revenue category	Craft beer sales
	Other beer sales
	Other alcoholic beverage sales
	Food and non-alcoholic beverage sales
	Merchandise
	Other

Iowa Craft Brewers Survey - Continued

Estimate the percent of your beer that was sold in 2014	Within Iowa?
	Outside of Iowa but within the U.S.?
	Outside of the U.S.?
If sold outside of Iowa but within the U.S., to which states did you ship your beer?	
Name the Iowa distributors that you use, include their cities:	
Please list this establishment's 2014 expenditures for each of the following inputs?	Hops
	Grains
	Other brewing ingredients (e.g. honey, spices)
	Chemicals (e.g. acid, chlorine)
	Utilities (water, gas, electricity)
	Packaging, labeling, distributing and marketing
	Equipment maintenance
	Merchandise
	Food (if part of a pub or restaurant)
Please estimate the dollar amount of 2014 purchases from Iowa vendors	Hops
	Grains
	Other brewing ingredients (e.g. honey, spices)
	Chemicals (e.g. acid, chlorine)
	Utilities (water, gas, electricity)
	Packaging, labeling, distributing and marketing
	Equipment maintenance
	Merchandise
	Food (if part of a pub or restaurant)
Who was the supplier(s) of your establishment's brewing equipment? Please include the city and state of each supplier.	
What was the cost of your establishment's original investment in brewing equipment?	
How many workers did this establishment employ in 2014?	Full time workers
	Part time workers
How many additional (not replacement) workers do you anticipate hiring in 2015?	Full time workers
	Part time workers
Indicate the benefits that your establishment offers to its employees (click all that apply):	Health care coverage for full-time
	Paid sick leave for full-time
	Health care coverage for part-time
	Paid sick leave for part-time
	Other (please specify)

Iowa Craft Brewers Survey - Continued

Please estimate the total taxes your establishment paid during 2014 for:	Iowa sales taxes
	Federal beer excise tax
	Iowa beer excise Tax
	Property tax
Is your establishment a member of the local chamber of commerce?	
How much did your establishment contribute to local charities during 2014?	
Do you or your employees (on behalf of the business) during 2014:	Give to charity organizations?
	Participate in local festivals?
	Do volunteer work?
	Participate in fundraising events?
	support "buy local" initiatives?
	Other (please specify)
Please describe an example of your brewery's participation in community activities (e.g. name of activity, how the brewery was involved, etc.)	

This survey was prepared by the study authors with the assistance of J. Wilson, Iowa Brewers Guild, and Colleen Murphy, Iowa Tourism Office. The survey was field tested by a group that included brewers and non-brewers. It was administered over the Internet by SurveyMonkey with invitations emailed to 78 potential participants. Over a four week period, 34 current and prospective brewers responded with at least a partially-completed survey. Using the SurveyMonkey software, the authors sent five reminders to encourage a greater response rate.

Prior to our issuing the email invitations, both J. Wilson and Colleen Murphy sent emails to their contact list of brewers encouraging them to participate in the survey. They also encouraged participation with follow up phone calls and emails.

Appendix B. Craft Beer Industry Glossary⁷⁶

Adjunct

Any unmalted grain or other fermentable ingredient used in the brewing process. Adjuncts used are typically either rice or corn, and can also include honey, syrups, and numerous other sources of fermentable carbohydrates. They are common in mass produced light American lager-style beers.

Ale

Ales are beers fermented with top fermenting yeast. Ales typically are fermented at warmer temperatures than lagers, and are often served warmer. The term ale is sometimes incorrectly associated with alcoholic strength.

All Extract Beer

A beer made with malt extract as opposed to one made from barley malt or from a combination of malt extract and barley malt.

All-Malt Beer

A beer made entirely from mashed barley malt and without the addition of adjuncts, sugars or additional fermentables.

Barley

A cereal grain derived from the annual grass *Hordeum vulgare*. Barley is used as a base malt in the production of beer and certain distilled spirits, as well as a food supply for humans and animals.

Barrel

1. A standard measure in the U.S. that is 31 gallons when used as a measure of beer volume.
2. A wooden vessel that is used to age/condition/ferment beer. Some brewer's barrels are brand new and others have been used previously to store wine or spirits.

Blending

The mixing together of different batches of beer to create a final product.

Body

The consistency, thickness and mouth-filling property of a beer. The sensation of palate fullness in the mouth ranges from thin- to full-bodied. Synonym: Mouthfeel.

Boiling

A critical step during the brewing process during which wort (unfermented beer) is boiled inside the brew kettle. Boiling also sterilizes a beer as well as ends enzymatic conversion of proteins to sugars.

⁷⁶ Extracts from <http://www.craftbeer.com/beer-studies/beer-glossary>

Bomber

A 22-ounce bottle of beer.

Bottle Conditioning

A process by which beer is naturally carbonated in the bottle as a result of fermentation of additional wort or sugar intentionally added during packaging.

Bottom Fermentation

One of the two basic fermentation methods characterized by the tendency of yeast cells to sink to the bottom of the fermentation vessel. Lager yeast is considered to be bottom fermenting compared to ale yeast that is top fermenting. Beers brewed in this fashion are commonly called lagers or bottom-fermented beers.

Brewpub

A restaurant-brewery that sells 25% or more of its beer on site. The beer is brewed primarily for sale in the restaurant and bar. The beer is often dispensed directly from the brewery's storage tanks. Where allowed by law, brewpubs often sell beer "to-go" and /or distribute to offsite accounts.

Brew Kettle

One of the vessels used in the brewing process in which the wort (unfermented beer) is boiled.

Carbon Dioxide (CO₂)

The gaseous by-product of yeast. Carbon dioxide is what gives beer its carbonation (bubbles).

Carbonation

The process of introducing carbon dioxide into a liquid (such as beer) by:

1. pressurizing a fermentation vessel to capture naturally produced carbon dioxide;
2. injecting the finished beer with carbon dioxide;
3. adding young fermenting beer to finished beer for a renewed fermentation;
4. priming (adding sugar to) fermented wort prior to packaging, creating a secondary fermentation in the bottle, also known as "bottle conditioning."

Cask

A barrel-shaped container for holding beer. Originally made of iron-hooped wooden staves, now most widely available in stainless steel and aluminum.

Cask Conditioning

Storing unpasteurized, unfiltered beer for several days in cool cellars of about 48-56°F (13°C) while conditioning is completed and carbonation builds.

Color

The hue or shade of a beer, primarily derived from grains, sometimes derived from fruit or other ingredients in beer. Beer styles made with caramelized, toasted or roasted malts or grains will exhibit increasingly darker colors. The color of a beer may often, but not always, allow the consumer to anticipate how a beer might taste. It's important to note that beer color does not equate to alcohol level, mouthfeel or calories in beer.

Contract Brewing Company

A business that hires another brewery to produce some or all of its beer. The contract brewing company handles marketing, sales and distribution of its beer, while generally leaving the brewing and packaging to its producer-brewery.

Craft Brewery

According to the Brewers Association, an American craft brewer is small, independent and traditional.

- **Small:** Annual production of 6 million barrels of beer or less (approximately 3 percent of U.S. annual sales). Beer production is attributed to the rules of alternating proprietorships.⁷⁷
- **Independent:** Less than 25 percent of the craft brewery is owned or controlled (or equivalent economic interest) by a beverage alcohol industry member that is not itself a craft brewer.

⁷⁷ According to the U.S. Department of the Treasury, Alcohol and Tobacco Tax and Trade Bureau (TTB.Gov):

An "[alternating proprietorship](#)" is a term used to describe an arrangement in which two or more people take turns using the physical premises of a brewery.

Generally, the proprietor of an existing brewery, the "host brewery," agrees to rent space and equipment to a new "tenant brewer." Alternating brewery proprietorships allow existing breweries to use excess capacity and give new entrants to the beer business an opportunity to begin on a small scale, without investing in premises and equipment.

The tenant qualifies as a brewer by filing the appropriate documents with TTB. The tenant brewer:

- Produces beer
- Keeps appropriate brewery records
- Labels the beer with its own name and address
- Obtains the necessary [COLAs](#)
- Pays tax at the [appropriate rate](#) upon removal of its beer from the brewery

The tenant brewer has title to the beer at all stages of the brewing process.

- **Traditional:** A brewer that has a majority of its total beverage alcohol volume in beers whose flavor derives from traditional or innovative brewing ingredients and their fermentation. Flavored malt beverages (FMBs) are not considered beers.

Draught Beer

Beer drawn from kegs, casks or serving tanks rather than from cans, bottles or other packages. Beer consumed from a growler relatively soon after filling is also sometimes considered draught beer. Learn more: Draught Quality Manual.

Export

Any beer produced for the express purpose of exportation. For example: export-style German lagers or export-style Irish stouts.

Fermentation

The chemical conversion of fermentable sugars into approximately equal parts of ethyl alcohol and carbon dioxide gas, through the action of yeast. The two basic methods of fermentation in brewing are top fermentation, which produces ales, and bottom fermentation, which produces lagers.

Fermentation Lock

A one-way valve, often made of glass or plastic that is fitted onto a fermenter and allows carbon dioxide gas to escape from the fermenter while excluding ambient wild yeasts, bacteria and contaminants.

Germination

Growth of a barley grain as it produces a rootlet and acrospire.

Growler

A jug- or pail-like container once used to carry draught beer bought by the measure at the local tavern. Growlers are usually ½ gal (64 oz) or 2L (68 oz) in volume and made of glass. Brewpubs often serve growlers to sell beer to-go. Often a customer will pay a deposit on the growler but can bring it back again and again for a re-fill. Growlers to-go are not legal in all U.S. states.

Hand Pump

A device for dispensing cask conditioned draught beer using a pump operated by hand. The use of a hand pump allows the draught beer to be served without the use of pressurized carbon dioxide.

Homebrewing

The art of making beer at home. In the U.S., homebrewing was legalized by President Carter on February 1, 1979, through a bill introduced by California Senator Alan Cranston. The Cranston Bill allows a single person to brew up to 100 gallons of beer annually for personal enjoyment and up to 200 gallons in a household of two persons or more of legal drinking age. Learn more from the American Homebrewers Association.

Hops

A perennial climbing vine, also known by the Latin botanical name *Humulus lupulus*. The female plant

yields flowers of soft-leaved pine-like cones (strobile) measuring about an inch in length. Only the female ripened flower is used for flavoring beer. Because hops reproduce through cuttings, the male plants are not cultivated and are even rooted out to prevent them from fertilizing the female plants, as the cones would become weighed-down with seeds. Seedless hops have a much higher bittering power than seeded. There are presently over one hundred varieties of hops cultivated around the world. Some of the best known are Brewer's Gold, Bullion, Cascade, Centennial, Chinook, Cluster, Comet, Eroica, Fuggles, Galena, Goldings, Hallertau, Nugget, Northern Brewer, Perle, Saaz, Syrian Goldings, Tettnang and Willamettes. Apart from contributing bitterness, hops impart aroma and flavor, and inhibit the growth of bacteria in [wort](#) and beer. Hops are added at the beginning (bittering hops), middle (flavoring hops), and end (aroma hops) of the boiling stage, or even later in the brewing process (dry hops). The addition of hops to beer dates from 7000-1000 BC; however hops were used to flavor beer in Pharaonic Egypt around 600 BC. They were cultivated in Germany as early as AD 300 and were used extensively in French and German monasteries in medieval times and gradually superseded other herbs and spices around the fourteenth and fifteenth centuries. Prior to the use of hops, beer was flavored with herbs and spices such as juniper, coriander, cumin, nutmeg, oak leaves, lime blossoms, cloves, rosemary, gentian, gaussia, chamomile, and other herbs or spices.

Keg

A cylindrical container, usually constructed of steel or sometimes aluminum, commonly used to store, transport and serve beer under pressure. In the U.S., kegs are referred to by the portion of a barrel they represent, for example, a ½ barrel keg = 15.5 gal, a ¼ barrel keg = 7.75 gal, a 1/6 barrel keg = 5.23 gal. Other standard keg sizes will be found in other countries.

Lager

Lagers are any beer that is fermented with bottom-fermenting yeast at colder temperatures. Lagers are most often associated with crisp, clean flavors and are traditionally fermented and served at colder temperatures than ales.

Large Brewery

As defined by the Brewers Association: A brewery with an annual beer production of over 6,000,000 barrels.

Malt

Processed barley that has been steeped in water, germinated on malting floors or in germination boxes or drums, and later dried in kilns for the purpose of stopping the germination and converting the insoluble starch in barley to the soluble substances and sugars in malt.

Malt Extract

A thick syrup or dry powder prepared from malt and sometimes used in brewing (often used by new homebrewers).

Mash

A mixture of ground malt (and possibly other grains or adjuncts) and hot water that forms the sweet wort after straining.

Microbrewery

As defined by the Brewers Association: A brewery that produces less than 15,000 barrels of beer per year with 75% or more of its beer sold off-site.

Package

A general term for the containers used to market beverages. Packaged beer is generally sold in bottles and cans. Beer sold in kegs is usually called draught beer.

Primary Fermentation

The first stage of fermentation carried out in open or closed containers and lasting from two to twenty days during which time the bulk of the fermentable sugars are converted to ethyl alcohol and carbon dioxide gas. Synonym: Principal fermentation; initial fermentation.

Prohibition

A law instituted by the Eighteenth Amendment to the U.S. Constitution (stemming from the Volstead Act) on January 18, 1920, forbidding the sale, production, importation, and transportation of alcoholic beverages in the U.S. It was repealed by the Twenty-first Amendment to the U.S. Constitution on December 5, 1933. The Prohibition Era is sometimes referred to as The Noble Experiment.

Regional Craft Brewery

As defined by the Brewers Association: An independent regional brewery having either an all malt flagship or has at least 50% of its volume in either all malt beers or in beers which use adjuncts to enhance rather than lighten flavor.

Secondary Fermentation

The second, slower stage of fermentation for top fermenting beers, and lasting from a few weeks to many months, depending on the type of beer.

Three-Tier System

The states developed a structure of checks and balances that provided safe alcohol to the consumer while ensuring a simple method to collect tax revenue. This is known as the three-tier system. The three-tier system is simple in theory: manufacturers provide alcoholic products to wholesalers, who distribute the products to retailers, who sell to the consumers. No one entity can be involved in more than one tier under most state models and each tier is regulated and licensed separately.

Top Fermentation

One of the two basic fermentation methods characterized by the tendency of yeast cells to rise to the surface of the fermentation vessel. Ale yeast is top fermenting compared to lager yeast, which is bottom fermenting. Beers brewed in this fashion are commonly called ale or top-fermented beers.

Water

One of the four ingredients in beer. Some beers are made up by as much as 90% water. Globally, some brewing centers became famous for their particular type of beer, and the individual flavors of their beer were strongly influenced by the brewing water's pH and mineral content. Burton is renowned for its bitter beers because the water is hard (higher PH), Edinburgh for its pale ales, Dortmund for its pale lager, and Plzen for its Pilsner Urquell (soft water lower PH).

Wort

The bittersweet sugar solution obtained by mashing the malt and boiling in the hops, which becomes beer through fermentation.

Yeast

During the fermentation process, yeast converts the natural malt sugars into alcohol and carbon dioxide gas. Yeast was first viewed under a microscope in 1680 by the Dutch scientist Antonie van Leeuwenhoek; in 1867, Louis Pasteur discovered that yeast cells lack chlorophyll and that they could develop only in an environment containing both nitrogen and carbon.

Appendix C. IMPLAN Input-Output Model Glossary

Backward linkage

The interconnection of an industry to other industries from which it purchases its inputs in order to produce its output. An industry has significant backward linkages when its production of output requires substantial intermediate inputs from many other industries. (BEA)

Compensation of employees

Compensation of employees is the total remuneration, in cash or in kind, payable by enterprises to employees in return for work done by the latter during the accounting period. (SNA) See Employee Compensation.

Direct effects

It is a series of production changes or expenditures made by producers/consumers as a result of an activity or policy. Applying these initial changes to the multipliers in an IMPLAN model will then display how the region will respond, economically to these initial changes.

Employee Compensation

Employee Compensation in IMPLAN is the total payroll cost of the employee paid by the employer. This includes wage and salary, all benefits (e.g., health, retirement) and payroll taxes (both sides of social security, unemployment taxes, etc.)

Employment multipliers

I-O multipliers used to estimate the total number of jobs (both full-time and part-time) throughout the economy that are needed, directly and indirectly, to deliver \$1 million of final demand for a specific commodity. (BEA)

Earnings multipliers

I-O ratios that measure earnings paid to households by employment throughout the economy, directly and indirectly, in connection with delivery of \$1 million of final demand for a specific commodity. (BEA)

Excise taxes

Taxes that are levied by the Federal Government on the manufacture, sale, or consumption of specific items, usually on a per-unit basis rather than a percentage basis. For example, cigarettes are taxed by the pack or carton, alcoholic beverages are taxed by the gallon or barrel, and gasoline is taxed by the gallon. Excise taxes are a type of commodity tax. (BEA)

Final Demand

The value of goods & services produced and sold to final users (institutions, individuals, or households) during the calendar year. This value is also equivalent to the Direct Effect of the impact.

Forward linkage

The interconnection of an industry to other industries to which it sells its outputs. It is measured as the row sum of the direct requirements table (direct forward linkage) or as the row sum of the total requirements table (total forward linkage). An industry has significant forward linkages when a substantial amount of its output is used by other industries as intermediate inputs to their production. (BEA)

Indirect business taxes (IBT)

In general terms, IBT can currently be considered the combination of excise, sales and property taxes, as well as, fees, fines, licenses and permits.

Indirect effects

The impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money leaks from the local economy, either through imports or by payments to value added.

Induced effects

The response by an economy to an initial change (direct effect) that occurs through re-spending of income received by a component of value added. IMPLAN's default multiplier recognizes that labor income (employee compensation and proprietor income components of value added) is not a leakage to the regional economy. This money is recirculated through the household spending patterns causing further local economic activity.

I-O analysis

A type of applied economic analysis that tracks the interdependence among various producing and consuming sectors of an economy. More particularly, it measures the relationship between a given set of demands for final goods and services and the inputs required to satisfy those demands. (BEA)

Jobs

A job in IMPLAN = the annual average of monthly jobs in that industry (this is the same definition used by QCEW, BLS, and BEA nationally). Thus, 1 job lasting 12 months = 2 jobs lasting 6 months each = 3 jobs lasting 4 months each. A job can be either full-time or part-time.

Job Year

Equals one full-time job lasting for one year.

Labor Income

All forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income.

Multipliers

They are the ratio of Total Production to initial Direct Inputs. Multipliers may be constructed for output, employment, and every component of Value Added.

Output

Output represents the value of industry production. In IMPLAN these are annual production estimates for the year of the data set and are in producer prices. For manufacturers this would be sales plus/minus change in inventory. For service sectors production = sales. For Retail and wholesale trade, output = gross margin and not gross sales.

Output multipliers

Derived from the I-O total requirements tables, the output multipliers show the amount of output required to satisfy a given level of final-use expenditures. For the commodity-by-commodity total requirements table, it is the production required both directly and indirectly of the commodity at the beginning of each row per dollar of delivery to final use of the commodity at the top of the column. For the industry-by-commodity total requirements table, it is the industry output required to deliver a dollar of a commodity to final users. For the industry-by-industry total requirements table, it is the industry output required to deliver a dollar of industry output to final users. (BEA)

Proprietor income

Proprietor income consists of payments received by self-employed individuals and unincorporated business owners. This income also includes the capital consumption allowance and is recorded on Federal Tax form 1040C.

Regional Purchase Coefficient

A Regional Purchase Coefficient (RPC) is the proportion of the total demand for a commodity by all users in the Study Area that is supplied by producers located within the Study Area. For example, if the RPC for the commodity fish is 0.8, then 80% of the demand by local fish processors, fish wholesalers, and other fish consumers are met by local fish producers. Conversely, 20% ($1.0 - \text{RPC}$) of the demand for fish is satisfied by imports. (IMPLAN)

Trade Flow

The flow of goods and services between or within counties, or user-defined study areas within the U.S.

Value added

The difference between an industry's or an establishment's total output and the cost of its intermediate inputs.