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The Ubiquity of Good Taste: A Spatial Analysis of the Craft Brewing Industry in the United States

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"The Ubiquity of Good Taste: A Spatial Analysis of the Craft Brewing Industry in the United States."

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Introduction

The performance and composition of the U.S. brewing industry has changed dramatically over the past three decades. More specifically, the industry has experienced contradictory shifts in both aggregate production volume and number of firms. While aggregate beer production in the US has increased modestly, per capita beer production has decreased steadily since the early 1980s, dropping 26 percent from a record 26.2 barrels per person in 1981 to a low of 19.5 barrels per person in 2011¹. However, the number of brewing establishments increased substantially during the same period, expanding from 48 breweries in 1981 to nearly 1,700 by 2011 – a 3,500 percent increase. So what explains this counterintuitive story? And how has this story manifested itself over space?

Much of the scholarly literature has examined the industrial structure of the brewing sector (Tremblay and Tremblay, 2005), and shows the industry shifted from large-scale and oligopolistic production of a homogenous product – American pale lager – to a more competitive and dispersed production of a highly diversified product – craft beer. This shift towards production of craft beer – which is made in relatively small batches using a variety of high quality ingredients, methods, and styles – likely mirrored an internationalization of US consumers' palates. However, analyses of how the craft beer industry has manifested itself over space are few in number. We might expect, *a priori*, a spatially homogenous distribution of craft beer production. This is because unlike wine and spirits, freshness of *craft beer* decreases relatively quickly over time without refrigeration, and transportation of beer is more expensive when compared to other types of fermented beverages. Thus, *ceteris paribus*, the highest quality and lowest cost craft beer originates from local production. While other explanatory factors may certainly affect the geography of craft beer producers (such as state and local regulations and access to inputs), this need for freshness likely explains the seemingly ubiquitous appearance of hundreds of microbreweries and brewpubs across the country. The desire for craft beer on the part of consumers also reflects the interplay of a number of other factors, including the emergence of a niche market for more flavorful beers, rising incomes, and the growth of the “buy local” movement. While this transformation has been well documented in the scholarly literature

¹ 1 barrel equals 31 U.S. gallons.

(Baginski and Bell, 2011; Kleban and Nickerson, 2011; Murray and O’Neill, 2012), little work examines the spatial distribution of craft beer production in the U.S.

This chapter seeks to fill this gap by analyzing the economic geography of the U.S. craft brewing industry. Specifically, our empirical approach consists of three exercises. First, we examine the temporal changes in the aggregate production volume and the total number of brewing establishments for each state. Second, we examine state-level variation in total beer production, total craft-beer production, percent craft beer production, and per-capita craft beer production. And last, we map the precise location of craft beer establishments to show the spatial and temporal distribution of active craft breweries in the U.S. Furthermore, in our conclusion we map the number of breweries-in-planning to estimate the future spatial distribution of the brewing industry. Our results are three-fold. First, they indicate the change in total brewing establishments and total beer production has manifested itself rather unevenly over space. Second, we find that craft-beer production at the state level has also increased in a spatially uneven manner, as the largest production still occurs in the states with a history of high beer production. Last, and in contrast to our first two exercises, we find that within states, the location of active craft-brewing establishments has spread from major urban centers in the 1980s to many other non-urban locations by 2011. We conclude that although growth in the craft-brewing sector will continue to be highest in areas with already high levels of brewing activity, there will be significant growth in regions that currently have few brewing establishments. The following section provides a background of brewing in the U.S., section 3 describes our methodology and data, section 4 presents the results, and section 5 draws some conclusions.

The Brewing Industry in the United States

Economic Importance and Industrial Structure

The brewing industry is an important contributor to local, regional, and national economies in the United States. Data gathered by The Beer Institute (2011) suggests that in 2010, the industry was responsible for 1.84 million jobs and \$71.2 billion in wages and benefits. The same data also show that total output was estimated at \$223.8 billion, or roughly 1.5 percent of U.S. GDP. Additionally, the consumption of beer generated \$5.3 billion in federal and state excise taxes, \$4.9 billion in states sales taxes, and \$682.2 million in other beer-specific local taxes. While there are no studies of the national economic impact of the craft brewing industry there are a number of state level studies (Combrink et al. 2012, Metzger 2012, Richey 2012, Wobbekind et al. 2012). For example, the total economic impact (direct, indirect, and induced) of craft brewing industry in the state of California is estimated to be 30,591 jobs and \$3.8 billion in economic output (Richey 2012).

The U.S. brewing industry consists of three segments (sometimes referred to as ‘strategic groups’). The first segment comprises the “traditional breweries” - large-scale mass producers who predominately produce an undifferentiated product in the form of domestic-style pale lager. Today, the segment is comprised of 2 nationally marketed breweries: Anheuser-Busch and MillerCoors.

The second segment of the industry is made up of regional producers with an annual beer production of between 15,000 and 6,000,000 barrels. This segment consists of approximately 100 breweries, and may or may not contain breweries that produce “craft” beer. For example, the Boston Beer Co. (brewer of Samuel Adam’s Boston Lager, Sierra Nevada Brewing Co. (brewer of Sierra Nevada Pale Ale), and New Belgium Brewing Company (brewer of Fat Tire Amber ale) are all classified as regional producers, even though much of the brewing world considers their products “micro” or “craft” beer. In contrast, producers such as D. G. Yuengling and Son Inc. (brewers of Yuengling Traditional Lager) and North American Breweries (brewers of Gennessee and Labatt) produce beer that is more similar to the traditional breweries.

The third segment comprises what are termed “craft breweries.” Firms in this segment are primarily microbreweries and brewpubs (Tremblay and Tremblay 2009), and can be divided into four sub-segments. First, there are brewpubs - restaurant-style brewing establishments that sell at least 25 percent of the beer they produce to customers on site. Second, there are microbreweries – breweries that produce less than 15,000 barrels of beer per year and sell at least 75 percent of their beer off-site. Third, there are the craft regional breweries – establishments that produce between 15,000 and 6,000,000 barrels of beer annually. The fourth sub-segment consists of contract brewing companies that produce beer under contract for third party firms. Alternatively, it can be a brewery that contracts with another brewery to produce additional beer. The contract brewing company handles marketing, sales, and distribution of the beer, while generally leaving the brewing and packaging to its producer-brewery (Brewers Association 2013. Craft breweries produce a wide variety of full-bodied European-style beer such as India Pale Ales (IPAs), Stouts, and Pilsners, utilize high quality inputs (e.g. malts and whole cone hops), utilize a slow brewing process, and produce in small batches (Kleban and Nickerson 2011). It is this segment of the industry that is the focus of this chapter.

Brewery Concentration, Production, and Consumption

The number of traditional breweries in the United States peaked at 648 in 1940. By 2010 this number had decreased to 20 (Figure 1). In 2011 the two brewers (Anheuser-Busch and MillerCoors) accounted for 75.1% of domestic beer sales (Beer Marketer’s Insights, 2013). Concentration in the brewery industry is explained by two major factors – technological changes in the industry that increased the minimum efficient scale (MES) of production and the advent of television in the 1940s that provided the larger brewers with a national stage upon which to market their product (Tremblay and Tremblay 2009). Generous marketing budgets also allowed the large breweries to brand their product with a premium image, thus differentiating it from that of the smaller traditional breweries, despite the fact that American brewers of all sizes were producing what was a largely identical and undifferentiated product (Clemons et al. 2006; Tremblay and Tremblay 2009). Smaller breweries were unable to compete with the huge marketing budgets of the larger breweries with the result that they were forced into mergers (with other struggling breweries) or out of business altogether (Clemons et al. 2006; Tremblay and Tremblay 2009). Tremblay and Tremblay (2009) also suggest that changing consumer tastes (away from darker to lighter beer) forced some domestic producers of dark beer out of business. This did, however, create a void in the market. Initially, this void was filled by imported beers and latterly by domestically-produced craft beers.

With the exception of the prohibition-era, the volume of beer produced in the United States has generally increased since records were first kept in 1860 (Figure 1). Production peaked at 6.3 billion gallons in 1990. Since then production has decreased slightly to 6.1 billion gallons in 2010. The rising production between 1860 and 1990 reflected rising demand, which in turn was driven both by population growth and rising per capita beer consumption (Figure 2). In 1860 per-capita beer consumption stood at 3.8 gallons. This number rose steadily until 1907 when it reached a pre-prohibition peak of 20.9 gallons. Following adoption of the 21st amendment to the U.S. Constitution in 1933, per capita beer consumption quickly increased reaching an all-time high of 26.2 gallons in 1981. The post-1981 period has witnessed a steady decline reaching a low of 19.5 gallons per capita in 2010 (Figure 2). To meet the increasing demand, breweries mass-produced large volumes of a standardized product - the pale lager-style beer that is the signature product of America's traditional breweries (Clemons et al, 2006).

The Rise of Craft Breweries

While passage of the 21st amendment signaled the beginnings of the modern-day large-scale brewery, it was the signing of a bill legalizing home brewing by President Jimmy Carter in 1979 that paved the way for the modern craft beer movement. In the mid-1980s individual states began making brewpubs legal and while brewpubs were legal in only six states in 1984, by 1999 they were legal in all fifty states ((Tremblay and Tremblay 2011; Murray and O'Neill 2012).

The post-1981 decline in beer consumption per capita and the decline in the number of traditional breweries have been mirrored by a concomitant rise in the number of craft breweries (Figure 3). Between 1980 and 2010 the number of craft breweries increased from 8 to 1,673. Unable to compete in terms of marketing budgets, craft brewers have been successful in the market place by providing consumers with a truly differentiated product that appeals to what Clemons et al (2006, 157) refer to as "beer geeks" (the brewing industry's equivalent of wine connoisseurs). Resonance marketing - the tailoring of products to the specific demands of consumers, rather than their general demands - and beer rating websites (e.g. beeradvocate.com and ratebeer.com) have become critical in the evolution of the craft specialty beer industry (Clemons et al 2006). Along with imported beers, craft beers are the only segments of the market that are experiencing any significant growth in sales and profits (Clemons et al 2006). The craft brewing segment continues to post impressive growth figures in a period when the traditional segment of the industry is experience declining sales. For example, in 2011 overall U.S. beer sales by volume decreased by 1.3%, while the craft beer sales increased by 13% (Brewers Association 2013).

Several theories have been advanced to understand the existence and structure of the craft brewing industry. For example, resource-partitioning theory (Carroll 1985; Carroll and Swaminathan, 2000) suggests that, as an industry matures, multiple segments may emerge. First, there are the generalists who capitalize on economies of scale to produce a relatively homogeneous product that meets the needs of the vast majority of consumers. In the US, these are the traditional breweries. The homogeneity of the product is reflected in the fact that consumers are generally unable to distinguish between the beers produced by the different traditional breweries (Allison and Uhl 1964; Jacoby et al. 1971). Over time, however, some consumers express dissatisfaction with this homogeneous product and a market evolves for higher quality and differentiated styles of beer. The craft brewers emerged to meet this demand.

The power of resource partitioning theory is such that Carroll (1985, 1280) invoked it to predict the growth of the craft brewing industry in the United States – “although it is premature to make predictions, the U.S. market appears ready for an upsurge of specialist breweries”. As they are effectively appealing to different segments of the market, the generalist producers and the specialist producer are not in direct competition with each other.

Resource-partitioning theory is supported by strategic group theory. A strategic group comprises firms within an industry who pursue similar long-term strategies (Tremblay 2005) and are differentiated from members of other strategic groups by their structural characteristics (Caves and Porter 1977). Distinguishing structural characteristics can include degree of vertical integration, marketing budget, product line diversity, and geographic scope of market (Caves and Porter 1977). According to Caves and Porter (1977, 251), “a typical pattern in consumer-goods industries is the presence of a small group of producers of a full line of nationally branded goods and a larger group of producers of unadvertised goods, regionally branded goods, and producers for private labels.” The existence of strategic groups is perpetuated when barriers to entry prevent members of one strategic group from entering the other. In the U.S. brewing industry we can identify three strategic groups – traditional brewers, regional brewers, and craft brewers. Barriers to entry into the traditional segment of the industry are driven primarily by the large investments that are required to take advantage of the economies of scale in production, distribution, and marketing. As a result, the craft brewers have satisfied themselves with meeting the needs of consumers who prefer more flavorful and distinctive beers that are not easily produced (or are very costly to produce) in large quantities. As such, entry into the craft segment of the industry is relatively easy and it is at this “competitive fringe” that we see new firms sprout and emerge (Caves and Porter 1977, 259).

Craft beer is attractive to a discernible demographic. The typical consumer of craft beer is male, white, earns at least \$75,000 per year, works in the service sector, and is college educated (Tremblay and Tremblay 2009, 2011; Clarke 2012; Murray and O’Neill 2012). Unlike mass-produced pale lager, craft beer is a normal good for which demand increases when incomes rise (Tremblay and Tremblay 2011). In his classic late 19th century work on the theory of wealth and status, Veblen (1899, 56) suggests that the consumption patterns of the “gentleman of leisure . . . undergoes a specialization as regards the quality of the good consumed. He consumes freely and of the best, in food, drink, narcotics . . .” This is consistent with Baginski and Bell’s (2011, 175) characterization of craft brewed beer as a “high order prestige good” that is “often viewed as highbrow”. Murray and O’Neill (2012, 900) refer to the craft beer consumer as “sophisticated” and “discerning”. Tremblay and Tremblay (2011, 155) refer to the “prestige factor” of drinking craft beer. Silberberg (1985, 882) notes that as incomes increase consumers are likely to be focus on “the pleasurable aspects of eating”. The demographics of the market may impact the geography of the industry as regions and locales whose demographic and economic characteristics are attractive to craft brewers are more likely to possess a higher number of microbreweries and brewpubs (Baginski and Bell 2011).

The rise of such quality beer is especially evident when looking at the historical trends of materials used in the brewing industry (Choi and Stack 2005). Figure 5 shows the number of pounds of rice and corn – cheaper and lower quality brewing ingredients referred to as “adjuncts” in the brewing world – from 1990 to 2011. The overall trend has been downwards,

with the use of corn and rice falling from roughly 1.1 million pounds each in 1990 to approximately 630,000 and 750,000 pounds, respectively, in 2011. Conversely, the use of “quality” brewing ingredients – namely barely, wheat, and hops – increased dramatically during the same period. From 1990 – 2011, the use of barely increased from 1 million to 123 million pounds, the use of wheat increased from 156,000 to 23 million pounds, and the use of hops increased from 44 million to 107 million pounds (see Figure 6).

Despite this rapid increase in the amount of beer produced using high quality ingredients, the concepts of “lock-in” and “switching costs” have been invoked to explain the relatively small market share enjoyed by craft producers. Lock-in is the idea that particular technologies and products develop an early lead in the market place and are adapted by society *writ large* with the result that they become dominant to the near exclusion of other technologies and products (Arthur 1989; David 1994). Once a technology or product becomes dominant, there are significant switching costs associated with changing to an alternative technology or product (Klemperer 1995). Choi and Stack (2005, 81) have invoked the concepts of lock-in and switching costs to argue that the American public, for a variety of reasons, has developed a taste for “a generic style of beer despite the prevalence of more flavorful alternatives”. Key events and trends that contributed to this lock-in are prohibition, the emergence of a consumer taste for soft drinks, the improvement in refrigeration and packaging technologies, and the invention of and consumer preference for nationally branded beers that were produced and marketed utilizing economies of scale. The result is that the “U.S. market has become locked in a suboptimal equilibrium in which most consumers are no longer familiar with the full range of what beer is and can be” (Choi and Stack 2005, 85). As has occurred in the case of many other consumer products, the cost of switching away from nationally branded beers to craft produce beers has, for the majority of consumers, been too high. For most craft beers, the price per unit of beer is roughly double that of mass-produced pale lager. Furthermore, the taste of craft beer could also be considered a high switching cost – most craft beer has significantly more aroma, flavor, and/or bitterness than traditional pale lager, and thus may inhibit rapid switching amongst individual consumers.

Last, the concept of neo-localism has also been invoked to explain the increasing popularity of craft breweries. Shortridge (1996, 10) defines neo-localism as the “deliberate seeking out of regional lore and local attachment by residents (new and old) as a delayed reaction to the destruction in modern America of traditional bonds to community and family.” A number of authors have argued that many craft breweries are utilizing naming and labeling to create such a sense of place and thereby a connection to the local community (Murray 2012, Schnell and Reese, 2003, Flack 1997). Schnell and Reese (2003, p.46) further suggest that the popularity of craft breweries derives “in part from the desire of people to break away from the smothering homogeneity of popular, national culture, and reestablish connections with local communities, settings and economies.” Craft breweries are, thus, part of the larger “buy-local” movement that has grown in popularity in recent years, particularly with respect to the purchase of locally-grown food by “localvores” (Bond et al, 2006). The buy-local philosophy has extended to the brewers themselves. A survey of 52 craft breweries conducted by the Food Processing Center at the University of Nebraska-Lincoln (2001) found that 59% were very or extremely interested in using locally-sourced grains in the making of their beer.

Literature Review

Despite the healthy body of literature on the US brewing industry, literature on the economic geography of the brewery industry is relatively sparse. A state-level analysis by Florida (2012) found the number of craft breweries per 100,000 population to be higher in states with higher levels of education and higher levels of happiness and well-being, while being lower in states where the population was politically more conservative, religious, smoked more, and had higher levels of obesity. Baginski and Bell (2011) analyzed the distribution of craft breweries across metropolitan areas of both the southeastern United States and the United States as a whole. They found that compared with other regions of the country, the southeastern United States has a smaller number of craft breweries both in absolute and per capita terms. The variability in the number of craft breweries per capita across southeastern metropolitan areas was correlated with higher costs of living, the existence of fewer health risks and greater provision of healthcare services, and a higher level of social tolerance. They also identified three metropolitan areas in the southeast that had a significantly larger number of craft breweries than predicted by their regression model. These were Asheville, North Carolina, Charlottesville, Virginia, and Myrtle Beach, South Carolina. In the cases of Asheville and Charlottesville, Baginski and Bell (2011, 177) suggest that both of these metropolitan areas appear to have the “ideal urban attributes” (e.g. high quality of life and vibrant downtowns) that result in a “greater degree of resource partitioning”. In the case of Myrtle Beach (and to some extent Asheville) a large tourist industry provides an ideal market for the craft brew industry. Baginski and Bell (2011) extended their analysis to metropolitan areas across the entire United States. The three variables that were significant in their southeastern model were also significant in their national model. In addition, however, they found five other variables to be significant. In the national model the presence of craft breweries was also correlated with the presence of high quality educational services, a higher quality of life, higher degrees of wage inequality, less developed technological sectors, and a less vibrant arts and culture scene. The direction of the relationship with the three latter variables was not as hypothesized. It should be noted that both the southeastern and national models had low levels of explanation with r-square values of 0.186 and 0.292 respectively. From their analysis Baginski and Bell (2011) conclude that the diffusion of the craft brewing industry down the urban hierarchy has occurred at a slower pace than in the country as a whole and reflects a lower level of demand for craft beers.

In an analysis of Portland, Oregon, Cortright (2002) suggests that the city’s thriving craft brewing industry cannot be explained by traditional industrial location factors such as resource endowments and transportation cost advantages. Rather, the catalyst for the industry can be found in “distinctive local tastes” that manifested themselves in the large concentration of home brewers, higher than average consumption of imported beer, a spirit of eclectic entrepreneurship, and the example of a vibrant boutique wine industry (Cortright 2002, 4). These ideas are supported by Tremblay and Tremblay (2009), who suggest that consumer preferences may vary by location as a result of geographic differences in customs, norms, or traditions.

Still, relatively little literature work has examined the economic geography of beer production across the entire U.S. Thus, we seek to fill this gap by examining state-level patterns of production, consumption, and location of the brewing industry in the US. The following section describes our methodology..

Data and Methodology

As noted above, our empirical approach consists of three exercises. First, we examine the temporal changes in the aggregate production volume and the total number of brewing establishments for each state. Second, we examine state-level variation in total beer production, total craft-beer production, percent craft beer production, and per-capita craft beer production. And last, we map the precise location of craft beer establishments to show the spatial and temporal distribution of active craft breweries in the U.S.

For our first exercise, we obtained state-level data on aggregate beer production and total number of brewing establishments from the Beer Institute's 2012 Brewers Almanac. These data allowed us to chart the temporal change in total barrels of beer produced in each state from 1967 to 2010, as well as the total number of active breweries in each state from 2004 to 2011. We present these results by both state (in table form) and region (using graphs). We group states into nine separate regions – Appalachia, the Heartland, the Mid-Atlantic, the Midwest, New England, the Mountain West, the Pacific Coast, the Southeast, and the Southwest.

For our second exercise, we utilized craft beer production data from the Brewers Association online database (available at www.brewersassociation.org). We combined these data with data from Brewer's Almanac to map state-level variation in total gallons of beer produced, total gallons of craft-beer produced, percent craft beer produced of total beer production, and per-capita production of craft beer in 2011.

Last, we obtained locational information on each craft-beer facility (including regional breweries) and combined this with year-of-establishment information to produce a series of maps that show the precise location of currently active breweries by decade of establishment. Specifically, we obtained the address, phone number, e-mail address, year of establishment, and production volumes for each microbrewery, brewpub and regional brewery, from multiple sources. Our first source was the Brewers Association website (mentioned above), which allowed for the search of breweries and brewpubs by state or by name. This returned a street address, phone number, web addresses, and production volumes for each listed establishment. Next, we utilized Brewery Database (www.brewerydb.com) to obtain zip codes and years of establishment for each establishment. This site allowed us to search breweries and brewpubs by name and to fill in missing data from the Brewers Association site. Next, we used the web page Beer Me!, at www.beerme.com to supplement year of establishment and barrel production figures. The above data sources allowed us to obtain the data for the vast majority of microbreweries and brewpubs. Data that were still missing were obtained from a variety of sources including the websites and Facebook pages of microbreweries and brewpubs, as well as media stories (usually in local newspapers) about microbreweries and brewpubs. As a last resort we contacted individual establishments via e-mail and telephone to obtain missing data. The resulting data tables were then formatted for mapping purposes in ArcMap. We used street addresses to geocode the microbreweries/brewpubs on a United States street network map. Address points were then created and spatial distributions were mapped over time.

The Evolving Geography of American Brewing

Our first exercise consisted of examining the changes in total production and number of breweries over time. Figures 6 and 7 show the temporal changes in total beer production and total number of breweries by region, respectively. Tables 1 and 2 show the respective figures by state. Our findings suggest that the nationwide trend of modest increase in aggregate production and substantial increase in the number of breweries has manifested itself in a rather uneven distribution across the country. We can generally classify region-level² production over time into three different growth categories (Figure 6). First, the high-growth category is composed of three regions: the Pacific Coast, the Southeast, and the Southwest. Each of these three regions experience large growth between 1967 and 2010, having started the time period quite low, from 9 -12 million barrels per year in 1967 to 27 – 33 million barrels per year in 2010. Second, the medium growth category is composed of the Appalachian Highlands, the Heartland, the Mountain West, and New England. These regions also started the time period with relatively low production (between 3 – 8 million barrels), but experienced monotonic increases to the end of the time period (to between 10 and 19 million barrels). Last, the modest/flat growth category consists of the Mid-Atlantic and Midwest. Like the medium and high-growth regions, these states also experienced growth in total beer production between 1967 and 1980, but then experienced periods of little or no growth.

We disaggregate production by growth category and region in Table 1. In the high-growth regions, much of the increase was driven by four states: California's production grew from 10.1 million to 22.1 million barrels; Texas' production increased from 6.3 million to 19.3 million barrels; Florida's production increased from 3 million to 12.7 million barrels; and Georgia's production increased from 1.3 million barrels to 5.7 million. In the medium growth regions, growth was primarily driven by two states: North Carolina's production increased from 1.4 million to 6.1 million barrels and Virginia's production increased from 2 million to 5.1 million barrels. In the slow/no growth regions, growth was driven primarily by Ohio (6.2 to 8.3 million barrels) and Illinois (6.6 to 8.8 million barrels).

Like our analysis of production, we can generally classify regional-level growth of the number of breweries³ into three different growth categories (Figure 7). First, high growth occurred in the Pacific Coast and the Midwest regions. These regions grew from approximately 290 breweries in 2004 to approximately 400 and 650 breweries in 2011, respectively. Second, the Mid-Atlantic and Mountain West regions grew from around 200 breweries each to approximately 250 and 300 breweries respectively. Last, the modest/flat growth regions consist of the Appalachian Highlands, the Heartland, New England, the Southeast, and the Southwest. These regions experienced slow growth during the 2004 – 2011 time period, growing from around 100 breweries to no more than 190.

² States comprising each region are identified in Tables 1, 2, and 3.

³ Due to data limitations, we are only able to analyze recent growth in the total number of breweries, from 2004 – 2011. As a result, note that Figures 6 and 7 represent vastly different time periods.

In Table 2, we disaggregate the number of breweries by growth category and region. For the high-growth regions, much of the increase in breweries was driven by three states: Oregon's brewing establishments increased from 83 to 119; Washington's establishments increased from 85 to 148; and Michigan's increased from 73 to 103. In the medium-growth regions, growth was driven primarily by Pennsylvania (an increase from 70 to 105 establishments) and Colorado (an increase from 90 to 124 establishments). Growth in the slow/no growth regions was also driven primarily by two states: the number of Texas establishments increased from 37 to 61, and the number in Missouri increased from 26 to 51.

Moving on to our second exercise, Figures 8 – 11 show state-level variation in the production of craft beer across the country in 2011. Figure 8 shows total beer production by state, and the map displays states such as California and Texas lead the way with over 400 million gallons of beer produced in 2011 respectively. Other states which have high overall beer production levels are Illinois, Ohio, Pennsylvania, and New York. Figure 9 shows total craft beer production by state, and the results closely mirror total beer production in Table 1. It appears aggregate levels of craft beer production follow two major trends across states: higher production in the most populated states (California, New York, and Texas) and in states with historically high levels of beer production (Colorado, Missouri, Wisconsin, and Pennsylvania).

However, when we look at two different measures of craft beer production that control for population size, a slightly different story emerges. Figures 10 and 11 show the amount of craft beer produced as a percent of total beer production and per-capita production of craft beer, respectively. In these figures the most populated states (California, Texas, and New York) drop to relatively lower levels of production, while a clear concentration of production arises in stereotypically "beer" states, such as Colorado, Oregon, Massachusetts, and Pennsylvania. Surprisingly, two states home to the two largest traditional breweries – Wisconsin (Miller) and Missouri (Anheuser-Busch) – are home to a relatively high level of craft beer production.

Our third exercise yields perhaps the most intriguing finding. While the previous two exercises show that growth in both aggregate and craft beer production has manifested itself quite unevenly over space, our spatial examination of brewpubs and microbreweries for the years of 1980, 1990, 2000, and 2011, uncovers an increasing propensity for breweries to establish in non-major markets. Figure 12 shows that up until 1980, the few craft beer establishments in the United States generally located in major urban centers. The rust belt cities of Pittsburgh, Cincinnati, Milwaukee, Detroit, and Chicago were home to early craft brew establishments. On the west coast, Seattle, the San Francisco Bay Area, and Southern California were also home to concentrations of craft breweries. There was nearly no representation in the southern states. Resort areas throughout the United States, like the Rocky Mountains, northern Michigan, and New England (eastern seaboard) were also early locations for craft brewing.

Figure 13 shows that as of 1990, established clusters appear to have developed on the west coast. The San Francisco Bay Area becomes the forerunner of the craft brewing industry in the United States, with other west coast metro areas such as Seattle and Los Angeles incubating craft brewing clusters. A swath of establishments starts to develop through the Rocky Mountains, with Denver anchoring the most of the breweries in this region. Growth in the Midwest appears to be sporadic, but spread across the region and close to or within major cities. On the East Coast, craft

brewing in New England seems to be following the megalopolis corridor, but with establishments popping up in the resort areas of Vermont, New Hampshire, and Maine. Again craft breweries in the south appear to lag behind the rest of the country.

Figure 14 shows that between 1990 and 2000, the craft brewing industry grew significantly. Metro areas across the country experienced a large increase in the amount of craft brewing establishments during this time period, specifically Seattle, Portland, San Francisco, Los Angeles, Denver, Chicago, Detroit, and New York. These locales experienced a doubling, some places a tripling, of firms from the previous decade. A developing trend in the industry shows that craft breweries seem to correspond with population densities; the higher the population density the larger the presence of craft brewing establishments. Also, resort areas seem to have agravity for craft breweries. Regions such as the Rocky Mountains, the Cascades, and Northern Michigan all experienced a significant increase in craft breweries during this period.

Also during this time, portions of the southern United States began to experience growth in the industry. Areas in Virginia, North Carolina, South Carolina, Georgia, and Florida ushered in multiple craft brewing establishments within the 10 years. Major cities such as Atlanta, Jacksonville, Tampa, and Miami became the few major cities in the south to experience growth in the craft brewing industry. The regions around Asheville and Winston-Salem in North Carolina begin to establish a cluster of craft establishments. The spatial story runs parallel with that of the coastal regions in the south. The coastal, resort areas of the south appear to be trying to catch up with the rest of the United States. The story for Alabama, Mississippi, Louisiana, southern Georgia, and the panhandle of Florida remains the same.

Figure 15 shows that as of 2011, the industry experienced exponential growth over the previous 10 years. Craft brewery establishments throughout the country are located not only around densely populated areas, but also increasingly into suburban, exurban, and even rural areas. Microbreweries are present in every consumer market in the United States with clear concentration and clusters around the major population centers. By 2011, only half of all craft brewery establishments in United States during this time were located within 50 miles of cities with a population of 315,000 people or greater. While the major clusters centered around Seattle, Portland, San Francisco, Los Angeles, San Diego, Denver, Chicago, Detroit, and the east coast experienced growth, it is of perhaps greater interest that significant expansion of craft breweries occurred in non-traditional markets in rural Wyoming, Montana, Nebraska, Tennessee, and Kentucky. Twenty years earlier, these areas had virtually no craft brewing establishments.

Furthermore, resort areas such as the Cascades Range, the Rocky Mountains, Northern Michigan, the Northern Appalachians, and the Piedmont of the Appalachians are also hotbeds for the craft brewing industry. There is a clear distribution of establishments through the Rocky Mountains stretching from Seattle, through Denver, and into Albuquerque. The Cascade corridor between Sacramento and Portland also displays a propensity for craft brewing establishments. The Northern Appalachians in Vermont, New Hampshire, and Maine is a developing hotspot for the industry as well.

Areas with lower population densities such as Arkansas, North Dakota, South Dakota, and Nevada have lower rates of observable craft brewing establishments. Other visibly neglected

locations include Mississippi and Alabama in the south. This can be explained by the fact that up until 2009, beer with an alcohol content greater than 6% was prohibited (Alabama House Bill 631). Similar restrictions applied in Mississippi until April of 2012, when the Craft Beer Bill was signed by Gov. Phil Bryant, allowing for the possession and consumption of beer with alcohol content greater than 5% (Nave 2012). Another observed explanation for the lack of craft breweries in the Dakotas and regions of the south is the social conservative nature of the areas, making such establishments undesirable by the more religious populations (Baginski and Bell 2011).

Conclusion

In this chapter, our goal was to spatially examine the economic and locational characteristics of the brewing industry in the United States. After our review of background data and scholarly literature revealed that much of the recent growth in the industry was in the craft beer sector, we developed a series of three empirical exercises to analyze the spatial variation in production and location of both aggregate brewing and craft brewing activity in the US. First, we conducted a broad level exercise by examining regional-level growth in both aggregate production volume and the number of brewing establishments. Second, we employed a spatially disaggregated analysis of the craft brewing industry by examining state-level production of craft beer in 2011. And last, we carried out a point-specific analysis of the location of craft breweries in the U.S. over the past 30 years.

Our results are threefold. First, our broad-level analysis of the U.S. brewing industry indicates that national trends in aggregate beer production and brewery openings have manifested themselves unevenly between regions. While the traditionally high output brewing regions of the Midwest and Mid-Atlantic have experienced slow growth in production volume over the past 40 years, they have paradoxically experienced relatively solid growth in the number of brewing establishments over the past 8 years. Conversely, the Pacific Coast experienced high growth in both beer production and the number of brewing establishments. Regions in the Southeast and Southwest also experienced high growth in beer production, but little growth in the total number of brewing establishments.

Second, our analysis of state-level craft beer production also reveals a spatially uneven distribution across the country. When looking at production *levels* of craft beer, we find that the largest concentrations of brewing activity is primarily in two types of states: highly populated states, such as California, New York, Pennsylvania, and Texas, and in states with a long-history of brewing culture – Colorado, Massachusetts, Missouri, Oregon, and Wisconsin. However, when we examine standardized measures of craft beer production, such as production per capita and percentage of total beer production, the states with established brewing culture dominate and states with large populations become less important.

Last, our point-specific analysis of the evolution of craft beer establishments in the U.S. reveals a much different spatial pattern than our first two analyses. While the initial spatial distribution of craft breweries in the 1980 and 1990 was also uneven – they tended to primarily locate in or near major urban centers – craft breweries have since spread to exurban and rural areas. Our series of

maps show a clear decentralization of such establishments between 1980 and 2011. While urban centers still harbor a distinct concentration of craft breweries, it is perhaps the expansion into less populated and more socially conservative areas in Alabama, Idaho, Louisiana Nebraska, Mississippi, and Wyoming that is most intriguing.

So what do these findings mean for the future of the U.S. brewing industry? First, it appears the craft beer industry will continue to be dynamic and fast changing. For example, in 2011 250 new microbreweries and brewpubs opened up, while 37 closed down (Brewers Association 2013). According to Metzger (2013) there are currently over 1,000 new microbreweries and brewpubs that are in the planning stages. There are 1,240 microbreweries and brewpubs listed as being in the planning stages on the The Brewers Association website. However, the industry will have to overcome the challenges associated with “lock-in” and “switching costs” if craft brewers are going to make significant inroads into a market that is currently dominated by the traditional brewers. Choi and Stack (2005, 86) suggest that “continued consumer behavior shifts may yet change the standard for American beer, but that this will most likely be a slow and gradual process”. In 2012 Charlie Papazian, President of the Brewers Association, predicted that by 2017 craft beers will account for ten percent of all beer sold in the United States (Rotunno 2012). The traditional brewers are aware of and taking notice of the challenge that they face from the craft segment of their industry. One response has to produce their own line of beers that, to the uneducated consumer, have the appearance of a craft beer. Examples include Blue Moon that is brewed by Coors and Shock Top that is brewed by Anheuser-Busch (Wilson 2012). These so called craft beers, or ‘crafty beers’ as some have labeled them, do not even mention the name of the traditional brewer on the label (Brewers Association, 2013). Another response has been for traditional brewers to purchase craft breweries. For example, in 2011 Anheuser-Busch purchased Chicago-based Goose Island for a reported \$38.8 million (CBS Chicago 2011). The extent to which these recent developments will become a discernible trend and what their impact on the industry might be is difficult to tell.

And how will the continuing expansion of microbreweries manifest itself over space? With over 1,000 brewpubs and microbreweries in the planning stages, we believe the future economic geography of the brewing industry will take to forms: (1) currently dominant states in the craft brewing industry will continue to be dominant, and (2) expansion will occur into states that have traditionally had fewer brewing establishments (especially in the south) Using data from the Brewers Association, we were able to map the potential growth of the industry over the next 3 or so years by using information on breweries-in-planning for each state (Figure 16). The Pacific coast will continue to display growth in craft brewing establishments. California, ground zero for craft brewing in the United States, will add over 150 craft brewing establishments in the upcoming years. Washington and Oregon will also be adding craft beer establishment in the near future, putting the region at the forefront of the craft brewing movement. The Midwest will steadily be adding craft beer establishments, with Illinois adding approximately 70 establishments in the next couple of years. The coastal Atlantic south will continue to catch up with the rest of the United States, with Florida setting the pace for the region. Though the coastal areas of the south show near future growth, states such as Mississippi, Alabama, Louisiana, Arkansas, Tennessee and Kentucky will continue to lag behind the rest of the country. Most of the Rocky Mountains region will see slow growth, but Colorado will continue to anchor the region in the industry, adding 100 plus craft brewing establishments in the upcoming years. The

Southwest, including Arizona and Texas, will experience significant growth, with Texas adding over 80 establishments. Finally, New England will experience significant growth in the more metropolitan states of New York, Pennsylvania, New Jersey, and Massachusetts, while more tourist oriented states in New England will see a minimal addition of craft brewing establishments in the upcoming years. Figure 16 suggests that the immediate future growth in the industry will in fact gravitate towards more populous states. Also, more socially conservative areas of the country will see slower growth compared to the more socially liberal areas. Craft beer is obviously growing in popularity, but when will the movement slow down? When will markets reach their saturation points? Future studies will need to examine micro-level economies to predict future shifts of the industry at the metropolitan level.

Figures and Tables

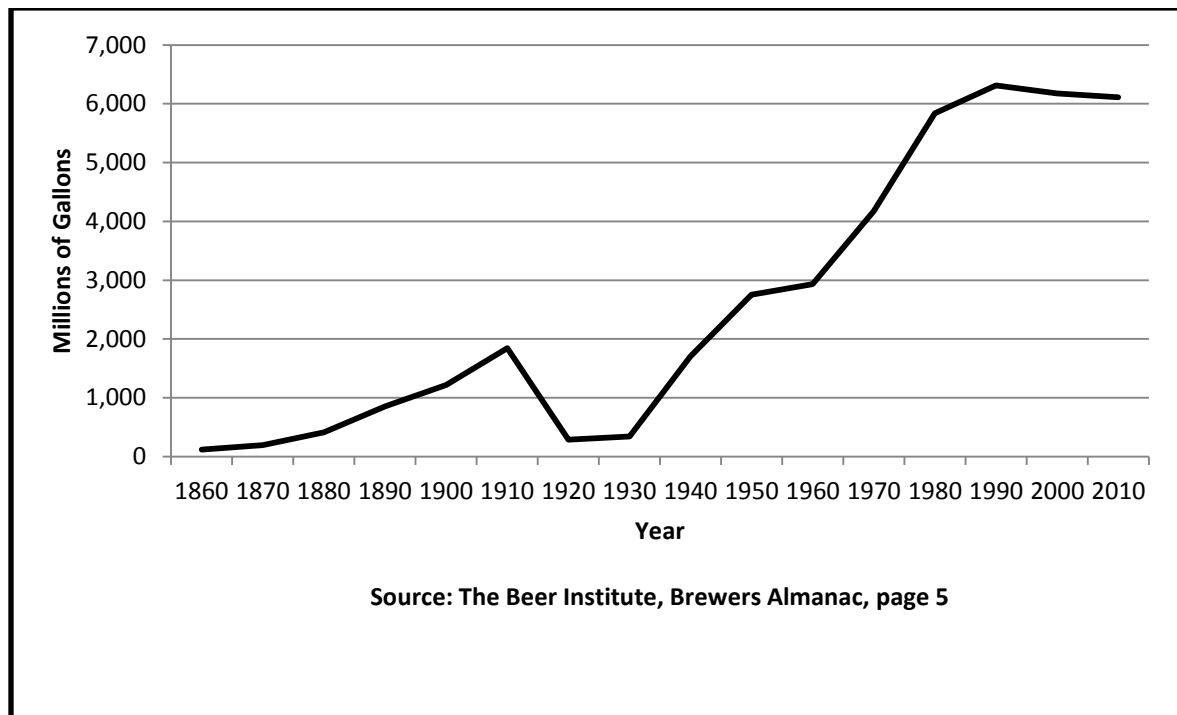


Figure 1: Production Volume of U.S. Breweries, 1933 - 2010

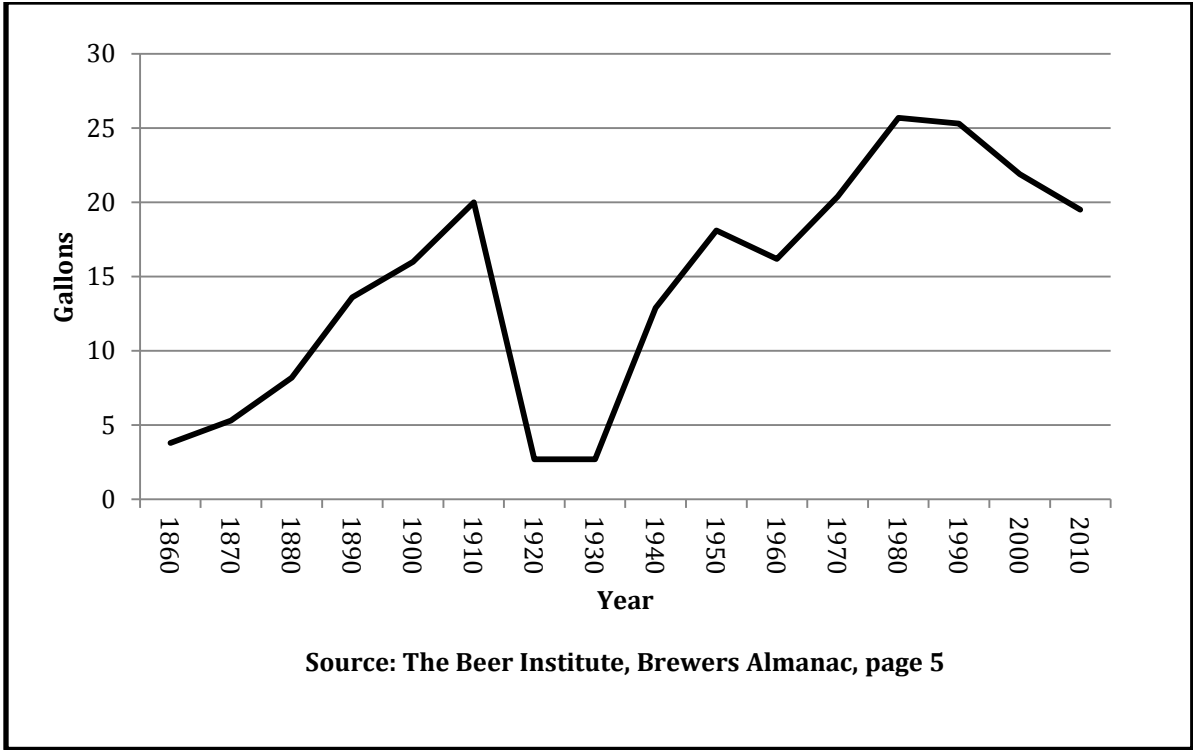


Figure 2: U.S. Beer Consumption Per Capita, 1860 - 2010

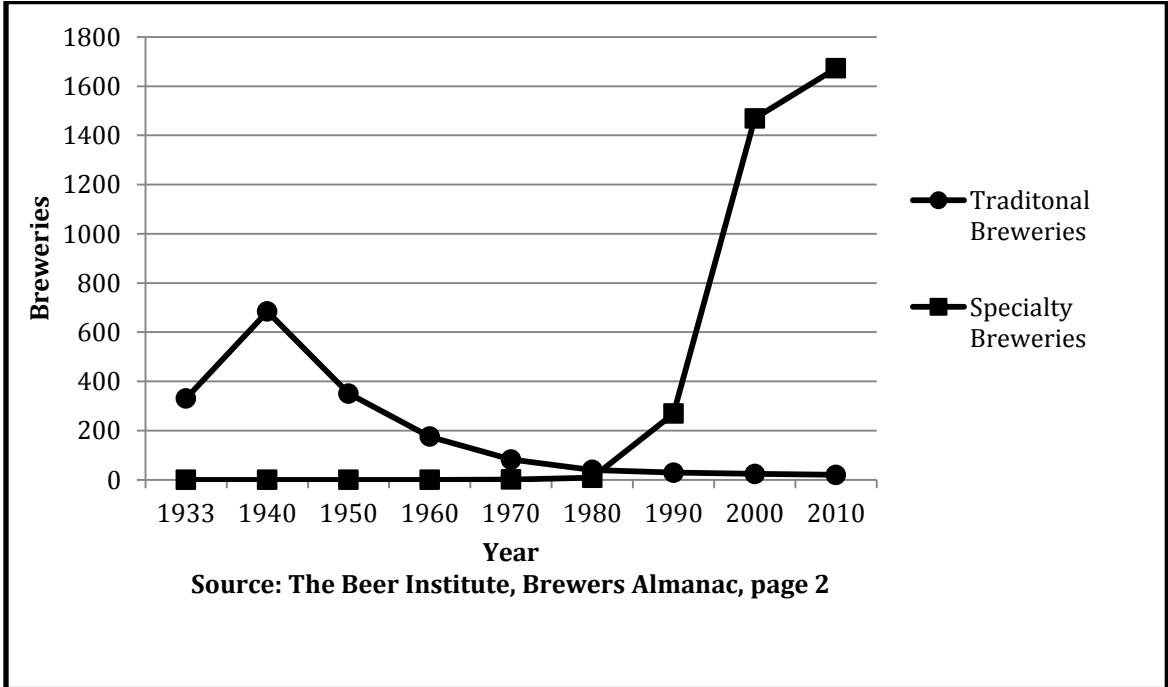


Figure 3: Number of U.S. Breweries, 1933 - 2010

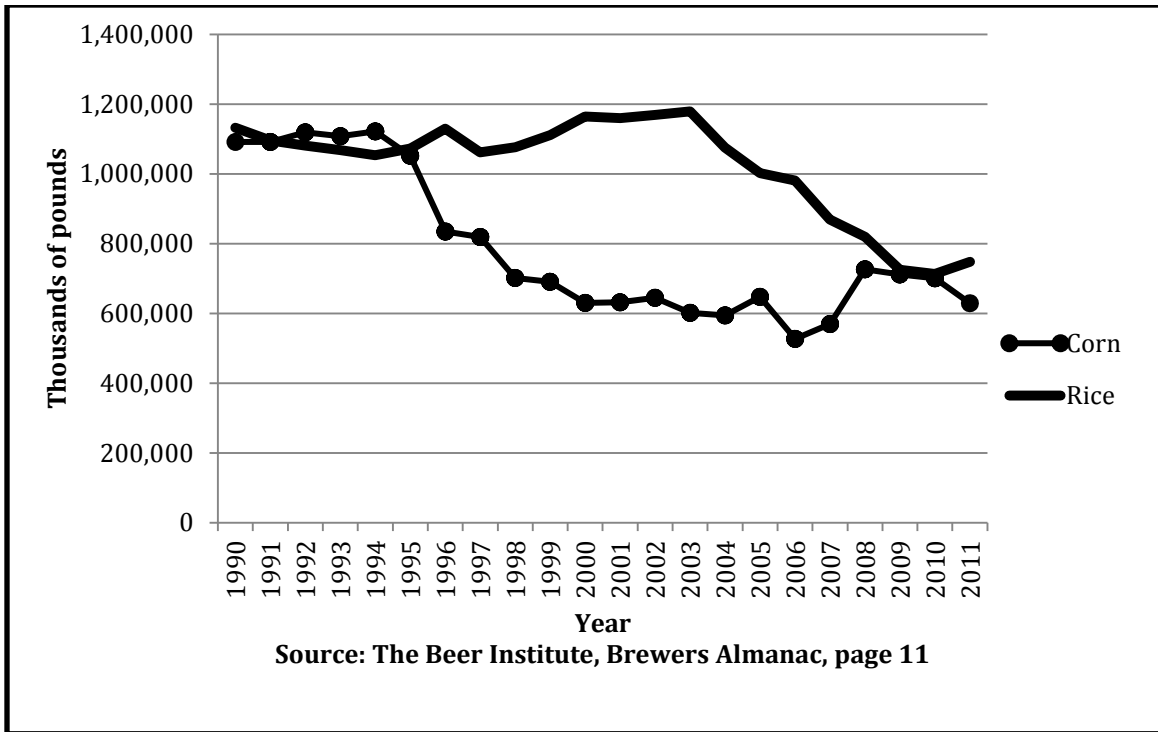


Figure 4: Amount of Adjuncts Used in Malted Beverages, 1990 - 2011

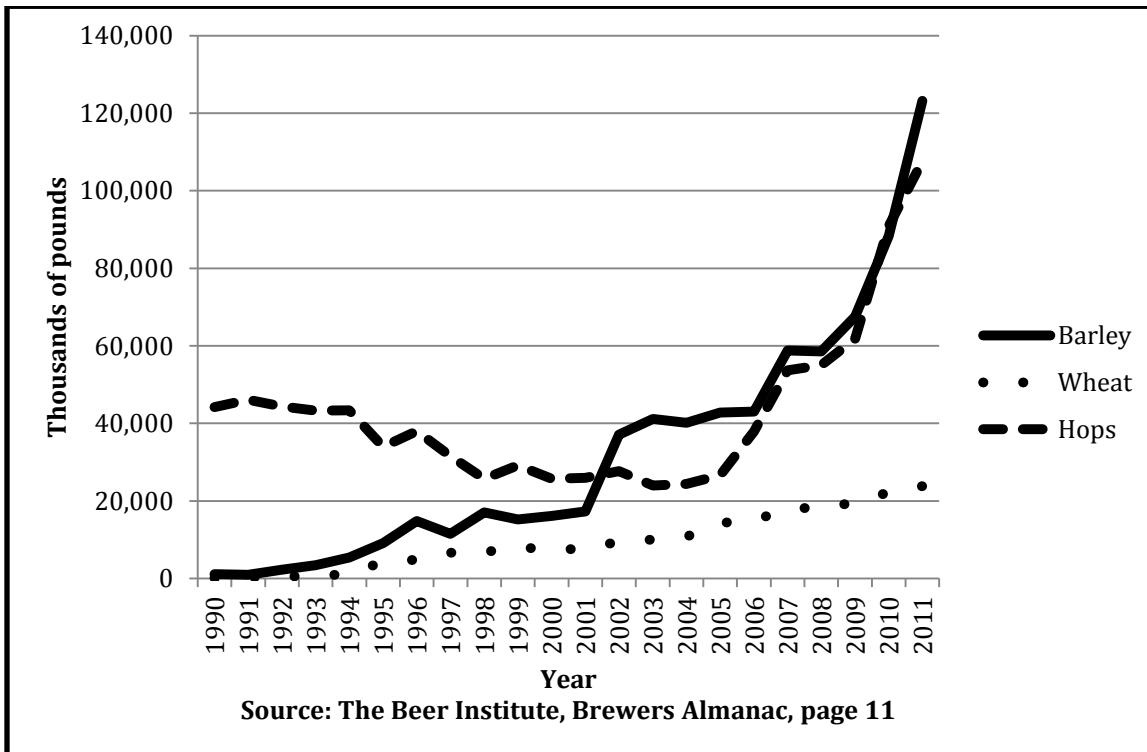


Figure 5: Amount of Quality Ingredients Used in Malt Beverages, 1990 - 2011

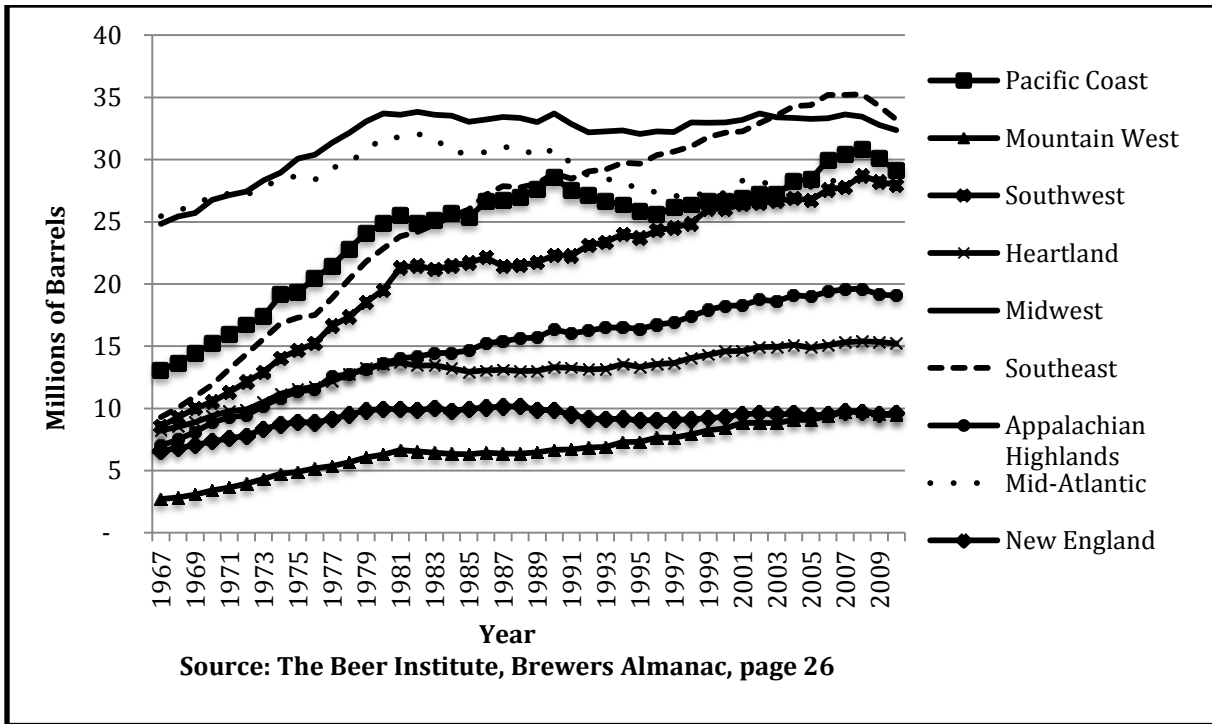


Figure 6: Total Beer Production by Region, 2004 -2010

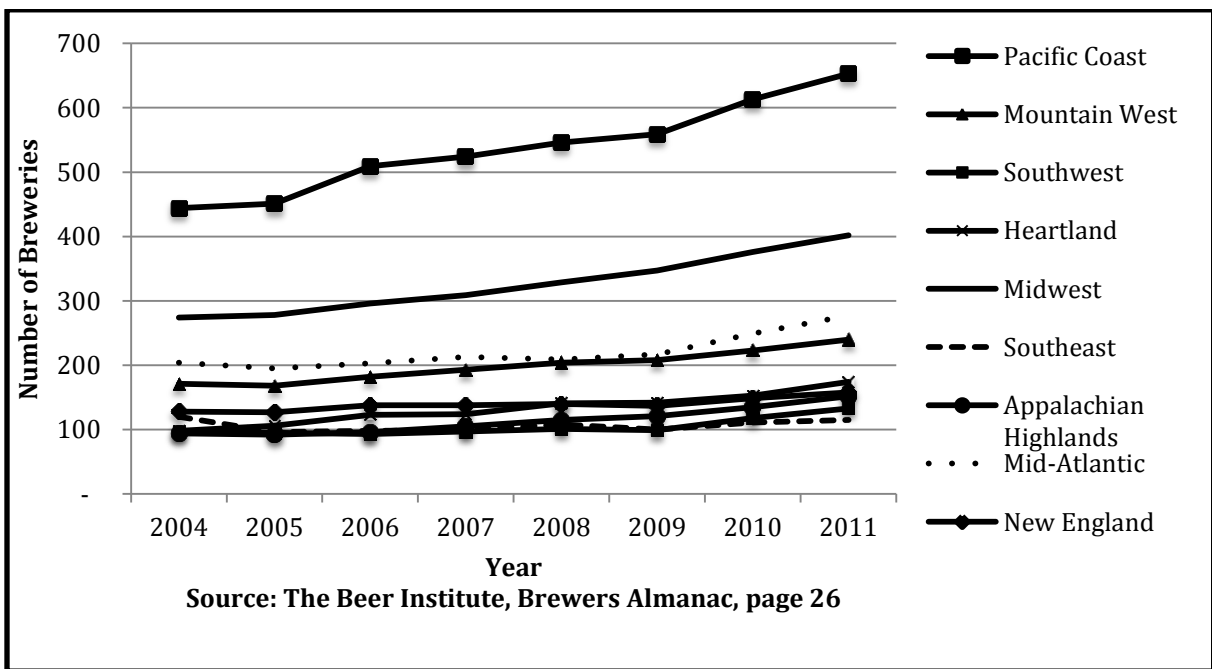


Figure 7: Number of Breweries by Region, 2004-2011

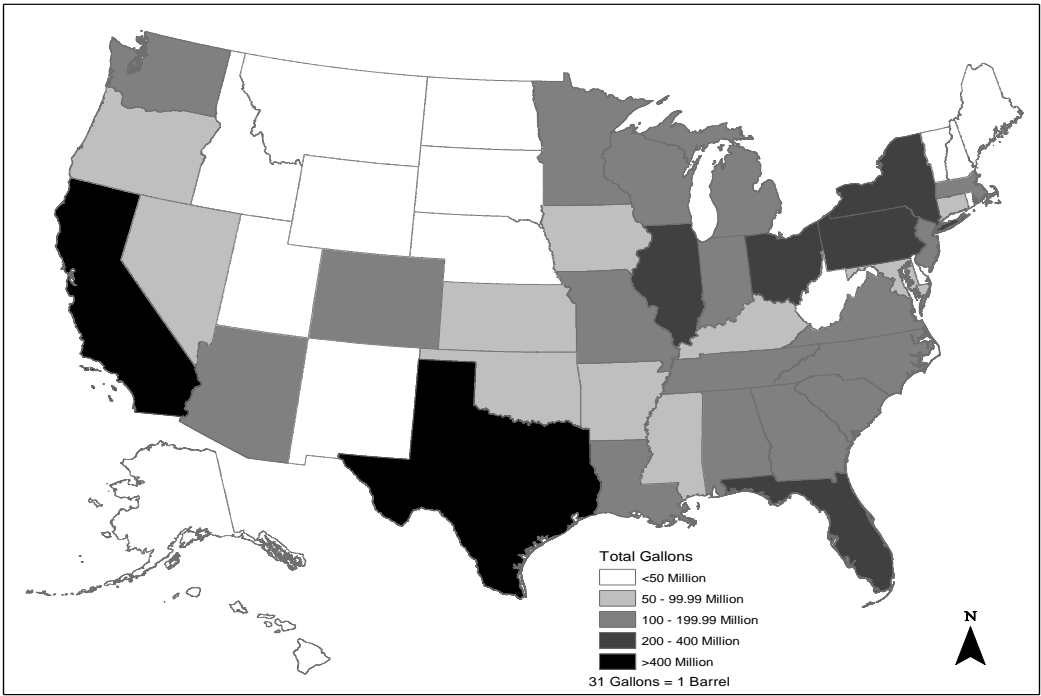


Figure 8: Total Gallons of Beer Produced

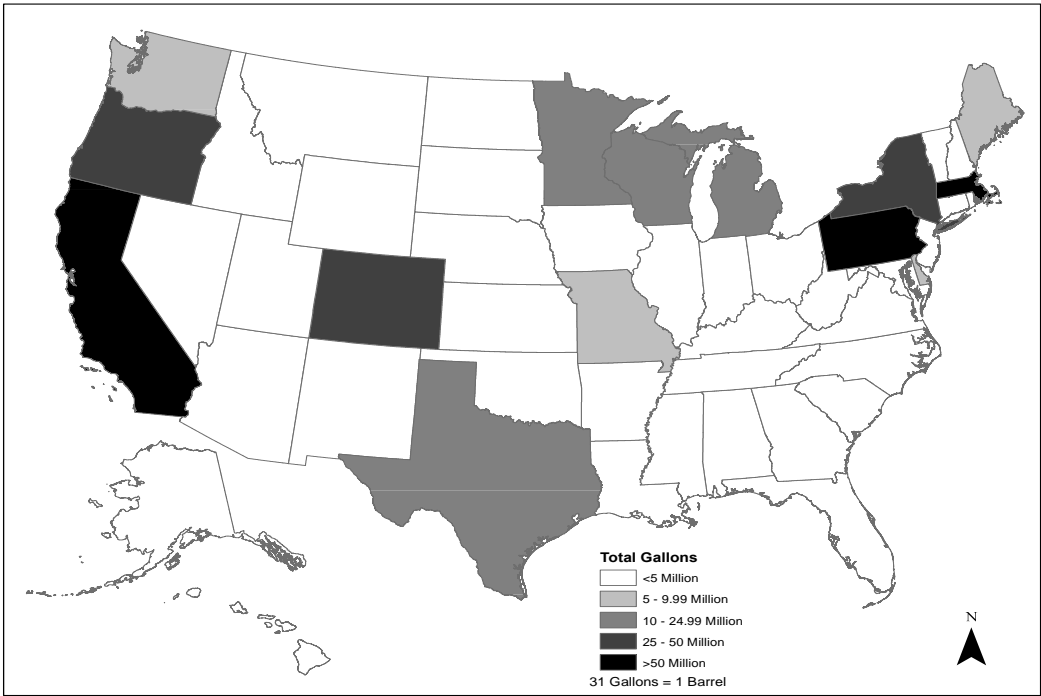


Figure 9: Total Gallons of Craft Beer Produced

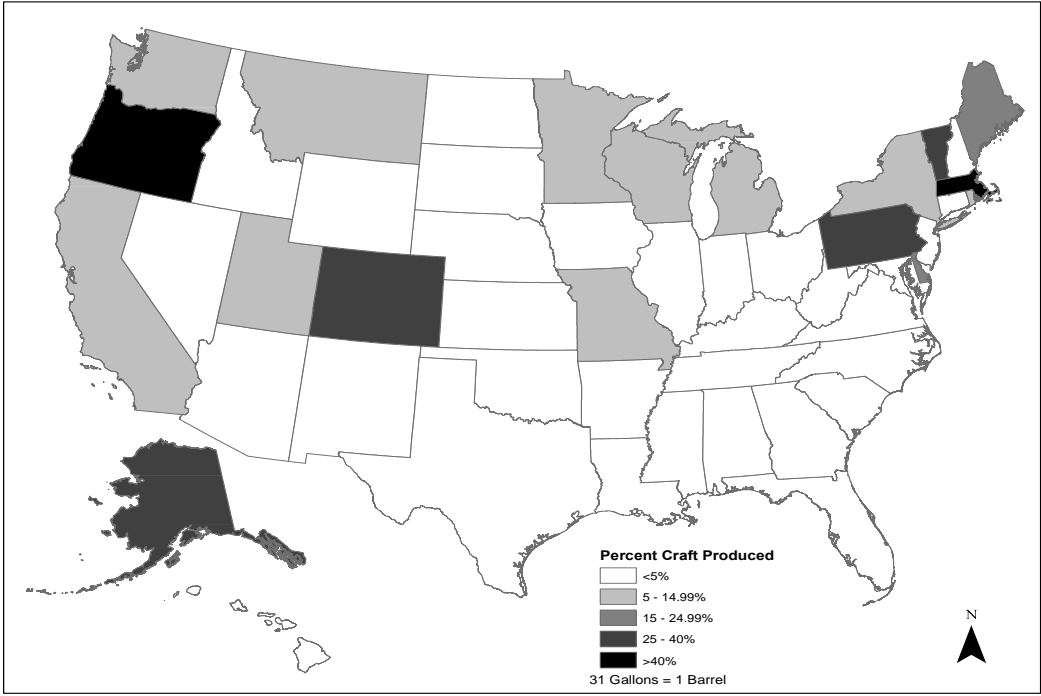


Figure 10: Craft Beer Produced as a Percent of State Total, 2011

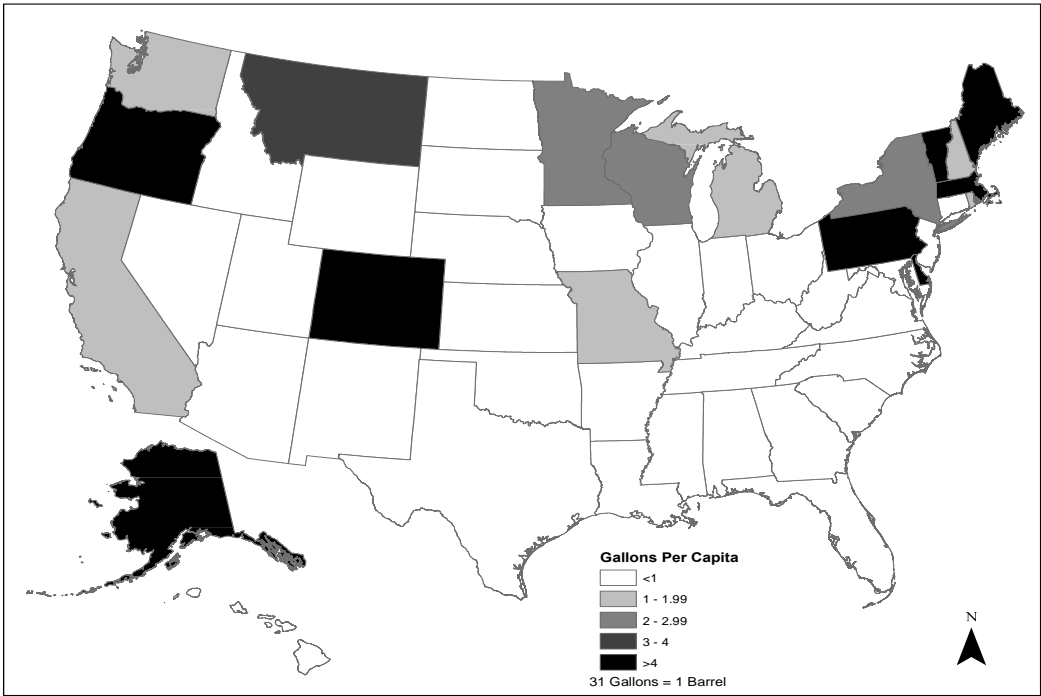


Figure 11: Gallons of Craft Beer Produced Per Capita, 2011



Figure 12: Location of Microbreweries, Brewpubs, and Regional Breweries, 1980

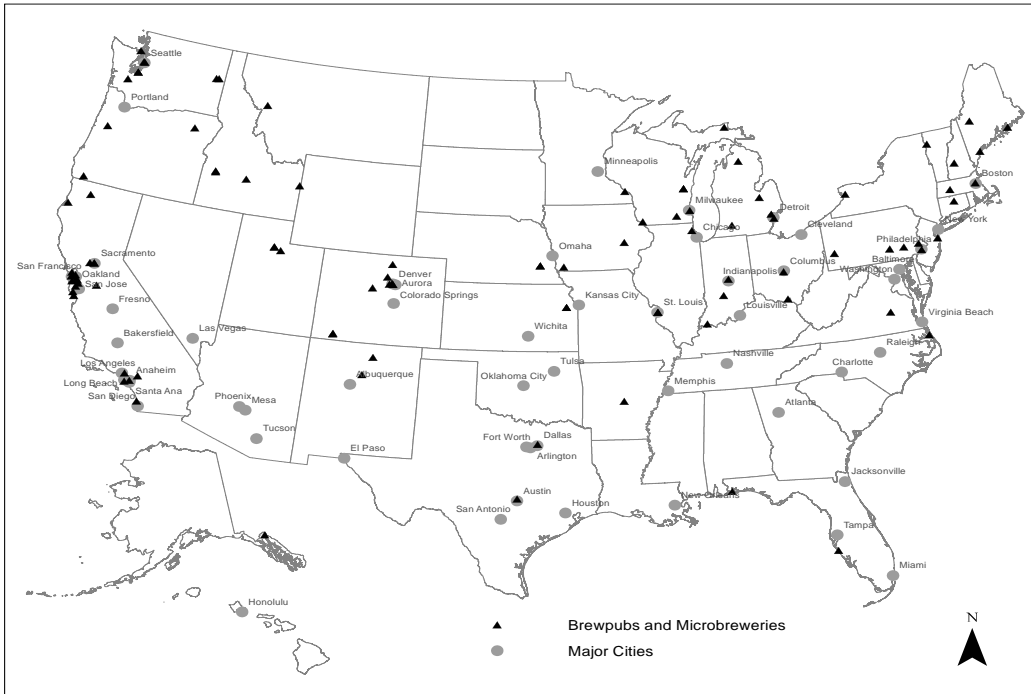


Figure 13: Location of Microbreweries, Brewpubs, and Regional Breweries, 1990

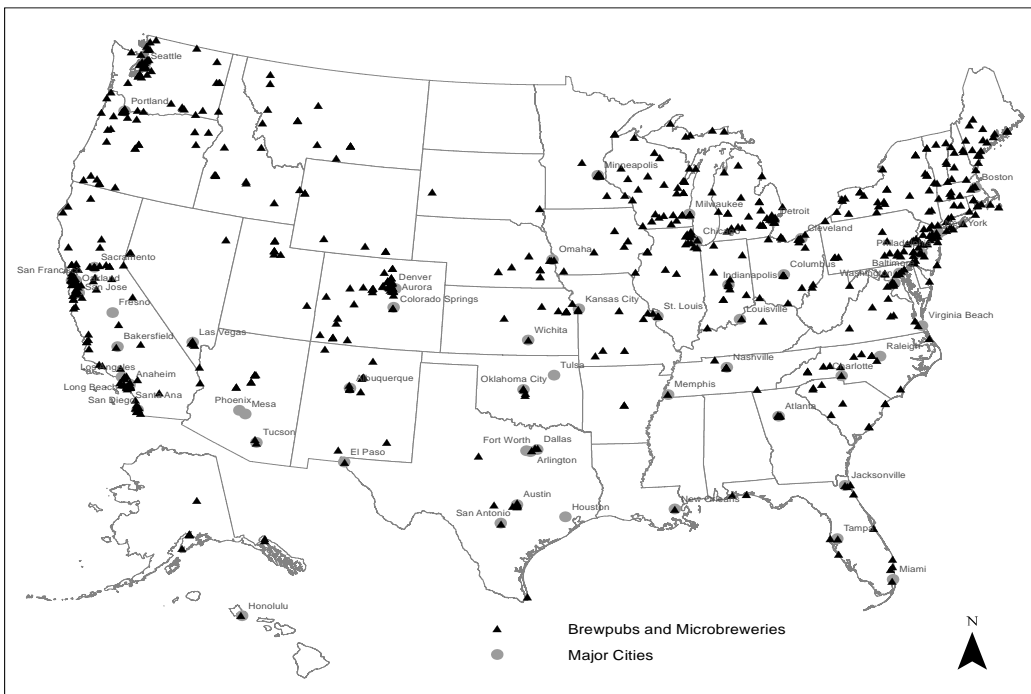


Figure 14: Location of Microbreweries, Brewpubs, and Regional Breweries, 2000

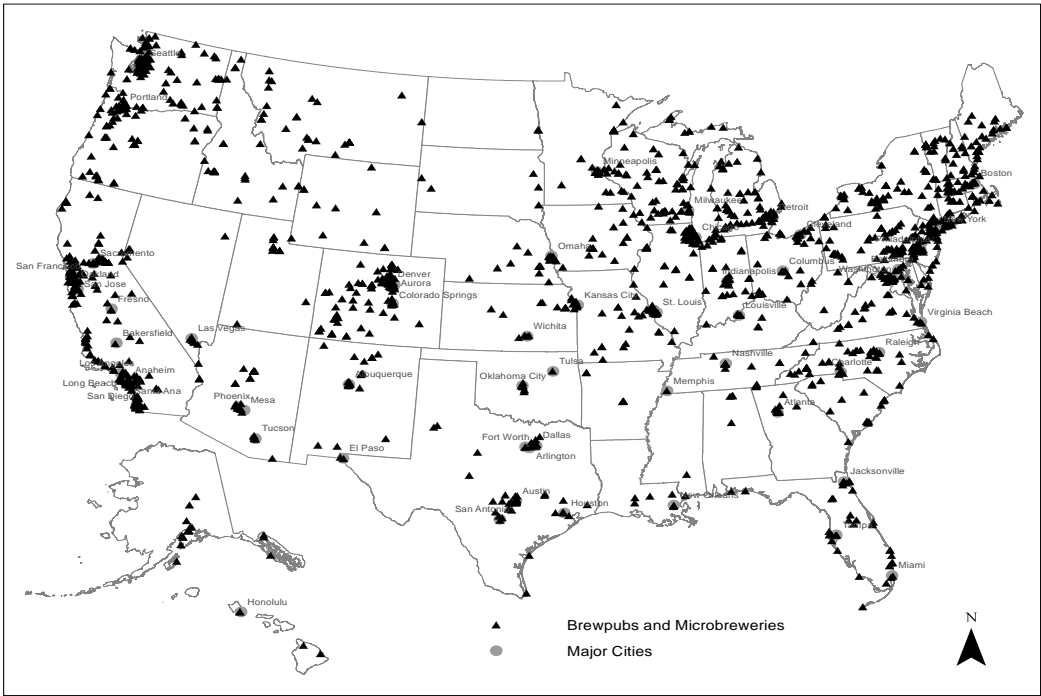


Figure 15: Location of Microbreweries, Brewpubs, and Regional Breweries, 2011

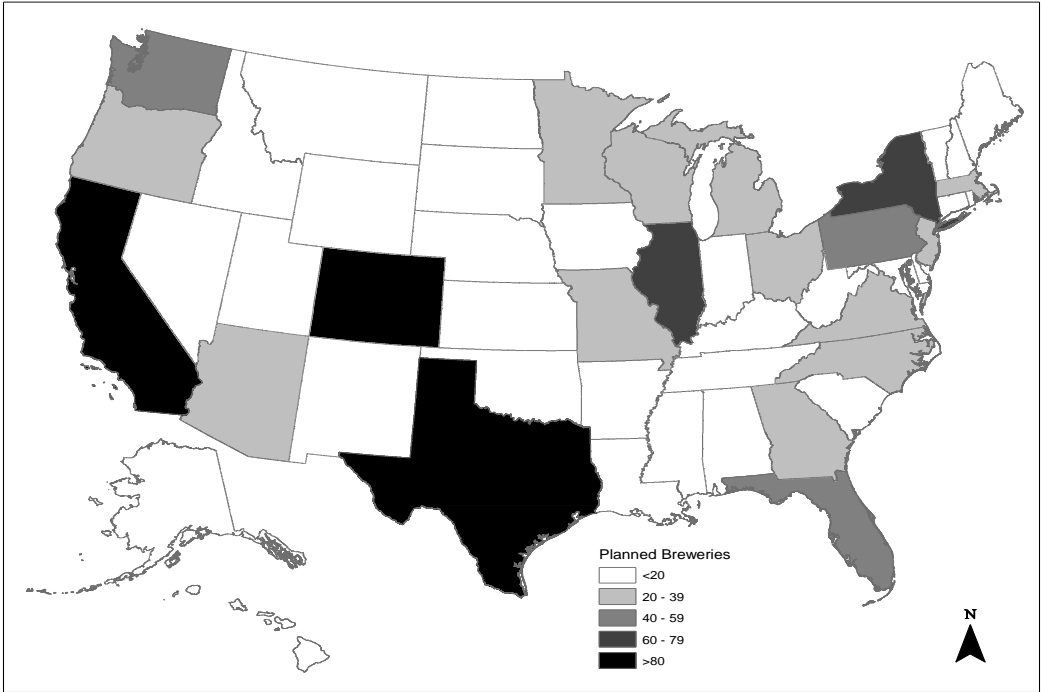


Figure 16: Planned Microbreweries and Brewpubs by State

Table 1: Number of barrels produced by state, 1967 - 2010

REGION	1967	1970	1975	1980	1985	1990	1995	2000	2005	2010
High Growth										
Pacific Coast										
Alaska	133,624	173,277	286,459	333,883	461,254	471,201	477,539	466,229	493,340	454,629
California	10,110,919	11,730,448	15,045,832	19,538,050	20,374,349	22,893,592	20,058,944	20,551,239	21,758,737	22,169,199
Hawaii	337,700	440,000	703,000	891,000	941,761	1,047,404	964,595	942,053	988,526	985,000
Oregon	1,124,917	1,316,054	1,633,866	2,046,810	1,912,661	2,148,886	2,230,889	2,391,559	2,657,610	2,801,298
Washington	1,802,229	2,156,079	2,652,422	3,270,749	3,054,070	3,518,284	3,565,042	3,714,436	4,030,955	4,149,637
Southeast										
Alabama	827,822	1,067,663	1,717,319	2,054,313	2,420,441	2,613,617	2,820,439	3,028,088	3,207,971	3,381,689
Arkansas	569,214	721,868	1,024,638	1,291,071	1,379,848	1,511,703	1,565,821	1,697,506	1,735,670	1,795,441
Florida	3,152,672	4,039,606	6,470,064	9,240,708	10,617,253	11,703,197	11,603,750	12,236,618	14,084,997	12,714,196
Georgia	1,339,546	1,873,828	2,558,231	3,431,052	4,127,697	4,668,307	4,986,825	5,711,652	5,815,383	5,765,443
Louisiana	1,898,640	2,212,185	2,629,832	3,170,830	3,324,469	3,592,736	3,654,519	3,820,258	3,687,427	3,617,305
Mississippi	680,323	924,140	1,258,503	1,544,576	1,735,635	1,931,322	2,084,650	2,316,864	2,331,674	2,319,457
South Carolina	823,044	1,061,194	1,643,938	2,118,190	2,385,989	2,876,440	2,954,748	3,358,582	3,512,254	3,617,174
Southwest										
Arizona	952,436	1,245,288	1,923,981	2,627,307	3,066,034	3,383,843	3,730,809	4,287,390	4,595,973	4,539,491
New Mexico	490,048	602,083	901,262	1,144,965	1,344,533	1,330,644	1,488,317	1,575,664	1,557,761	1,575,516
Colorado	1,035,278	1,359,510	1,998,908	2,589,336	2,626,720	2,571,867	2,942,915	3,339,663	3,484,549	3,565,994
Oklahoma	829,980	1,070,982	1,476,460	1,930,287	1,922,437	1,994,090	2,111,738	2,213,729	2,268,257	2,466,610
Texas	6,309,885	7,616,939	10,378,631	13,830,998	15,367,855	15,596,032	16,383,991	17,966,620	18,315,480	19,361,421
Medium Growth										
Appalachian Highlands										
Kentucky	1,392,514	1,583,194	1,942,907	2,189,037	2,270,089	2,388,064	2,355,269	2,517,894	2,555,739	2,507,991
North Carolina	1,446,561	1,915,663	2,845,519	3,680,615	3,974,657	4,473,454	4,753,758	5,590,081	5,958,000	6,109,484
Tennessee	1,393,208	1,814,187	2,511,299	2,863,139	3,045,632	3,438,345	3,620,512	4,001,309	4,055,232	3,892,794
Virginia	2,078,238	2,727,518	3,126,816	3,763,737	4,119,802	4,785,500	4,426,756	4,862,375	5,068,940	5,190,586
West Virginia	698,079	810,216	928,363	1,101,259	1,228,798	1,253,438	1,231,142	1,274,626	1,359,231	1,376,841
The Heartland										
Iowa	1,445,053	1,622,377	2,019,396	2,317,271	2,128,498	2,114,019	2,081,731	2,298,817	2,392,252	2,496,039
Kansas	819,385	1,027,487	1,435,054	1,655,966	1,591,637	1,575,068	1,580,259	1,768,782	1,836,845	1,886,675
Minnesota	1,941,918	2,235,089	2,790,318	3,209,514	3,110,799	3,269,470	3,283,822	3,588,539	3,519,542	3,530,241
Missouri	2,504,326	2,804,508	3,219,165	3,904,116	3,847,366	4,008,145	4,029,618	4,333,699	4,393,560	4,454,255
North Dakota	341,832	388,313	480,428	558,914	510,735	549,071	527,177	572,588	643,784	647,547
South Dakota	279,548	322,343	406,638	500,238	477,424	525,004	557,055	624,155	676,937	722,163
Mountain West										
Colorado	1,035,278	1,359,510	1,998,908	2,589,336	2,626,720	2,571,867	2,942,915	3,339,663	3,484,549	3,554,829
Idaho	354,798	439,844	647,269	773,489	722,744	743,472	754,834	846,953	934,764	1,016,510
Montana	492,787	554,161	683,666	799,565	739,782	717,112	743,788	814,751	900,780	971,947
Nevada	346,589	439,345	641,922	950,971	1,076,433	1,557,800	1,694,179	2,066,301	2,353,411	2,337,629
Utah	314,917	394,046	549,856	705,870	730,842	705,141	804,270	928,923	972,758	1,103,305
Wyoming	169,631	221,526	375,174	474,590	426,480	366,582	366,318	406,568	429,988	444,081
New England										
Connecticut	1,529,698	1,602,579	1,814,020	1,911,329	2,131,896	2,104,449	1,862,562	1,854,550	1,850,876	1,863,545
Maine	549,128	644,534	835,958	839,745	833,153	874,938	844,848	882,900	987,454	1,036,236
Massachusetts	3,109,319	3,472,743	4,294,783	4,978,869	4,579,881	4,465,982	4,041,187	4,166,772	4,110,770	4,121,871
New Hampshire	511,390	647,697	865,451	1,012,496	1,150,351	1,176,437	1,148,019	1,270,415	1,313,267	1,386,944
Rhode Island	614,272	656,780	731,536	808,946	802,597	777,835	707,627	707,004	690,237	679,090
Vermont	275,680	319,547	364,769	414,979	458,605	473,738	429,889	440,506	465,345	528,469
Slow/No Growth										
Mid-Atlantic										
Delaware	301,858	331,077	391,140	490,368	526,566	555,335	567,841	617,937	707,143	735,442
Maryland	2,364,883	2,664,569	3,060,055	3,422,178	3,388,029	3,358,317	3,077,410	3,153,355	3,312,453	3,248,845
New Jersey	4,208,441	4,462,008	4,712,090	5,235,870	5,210,954	5,240,440	4,803,697	4,673,887	4,822,569	4,758,293
New York	11,050,565	11,536,043	11,708,978	12,610,539	11,910,116	11,856,992	10,440,066	10,164,810	10,398,722	10,336,562
Pennsylvania	7,529,669	8,011,010	8,838,613	9,950,346	9,509,800	9,878,671	8,703,058	8,709,865	8,579,334	8,894,102
Mid-West										
Illinois	6,651,330	7,102,911	8,022,413	9,206,604	9,043,899	9,486,982	8,853,579	9,038,323	9,063,267	8,842,590
Indiana	2,487,132	2,711,024	3,018,398	3,874,415	3,894,918	4,008,507	3,767,912	3,954,209	3,998,855	4,005,194
Michigan	5,804,709	6,256,847	7,043,665	6,939,045	6,760,524	7,041,665	6,625,566	6,761,561	6,700,174	6,315,663
Nebraska	874,567	1,005,899	1,175,804	1,396,859	1,271,896	1,280,624	1,271,740	1,399,454	1,427,389	1,484,112
Ohio	6,257,706	6,768,702	7,285,026	8,477,433	8,384,943	8,354,191	8,203,797	8,493,144	8,584,283	8,386,105
Wisconsin	3,627,285	3,918,890	4,720,983	5,201,131	4,951,372	4,816,526	4,619,145	4,741,019	4,929,529	4,833,368
TOTAL	93,711,182	106,567,473	129,468,147	153,782,412	157,756,849	164,566,979	162,049,868	172,418,369	178,075,373	178,419,085

Source: 2012 Brewers Almanac

Table 2: Number of Active Breweries by State, 2004 - 2011

REGION	2004	2005	2006	2007	2008	2009	2010	2011
High Growth								
Pacific Coast								
Alaska	12	11	15	16	16	17	20	22
California	256	253	283	293	307	305	318	332
Hawaii	8	8	11	10	10	9	8	8
Oregon	83	86	94	96	104	105	119	130
Washington	85	93	106	109	109	123	148	161
Mid-West								
Illinois	39	38	43	42	45	52	55	55
Indiana	21	25	25	29	32	38	43	52
Michigan	73	78	91	93	93	96	103	114
Nebraska	13	15	16	17	17	18	15	18
Ohio	49	45	49	51	60	60	63	66
Wisconsin	92	92	88	94	99	101	112	115
Medium Growth								
Mid-Atlantic								
Delaware	9	7	8	8	8	10	9	9
Maryland	25	24	21	22	22	23	22	24
New Jersey	21	22	20	21	21	20	24	26
New York	79	73	79	75	73	76	89	101
Pennsylvania	70	69	75	87	85	88	105	117
Mountain West								
Colorado	90	92	105	109	113	111	124	133
Idaho	17	16	17	17	20	21	21	27
Montana	21	19	21	26	29	30	30	32
Nevada	17	14	16	15	16	17	18	18
Utah	14	14	13	13	13	15	16	16
Wyoming	12	13	10	13	13	14	14	14
Slow/No Growth								
Appalachian Highlands								
Kentucky	9	9	9	11	11	13	12	13
North Carolina	38	38	40	43	44	46	54	63
Tennessee	18	13	14	19	19	19	20	27
Virginia	25	28	29	28	37	37	42	44
West Virginia	4	4	4	4	4	6	7	5
The Heartland								
Iowa	16	16	17	19	20	21	24	29
Kansas	10	11	14	14	15	15	15	17
Minnesota	26	26	30	28	41	41	39	49
Missouri	25	29	37	38	41	41	51	51
North Dakota	4	5	3	2	1	1	3	3
South Dakota	4	4	6	6	6	5	6	7
New England								
Connecticut	14	15	18	17	19	18	20	17
Maine	37	41	40	40	39	38	39	44
Massachusetts	37	34	40	42	41	40	43	46
New Hampshire	13	13	14	14	15	16	17	18
Rhode Island	5	5	5	5	5	5	5	5
Vermont	22	19	21	20	21	20	25	28
Southeast								
Alabama	4	5	5	6	6	6	7	7
Arkansas	4	4	5	4	4	4	5	7
Florida	63	43	48	47	57	47	52	52
Georgia	23	19	19	20	19	22	22	24
Louisiana	8	10	6	5	6	6	9	8
Mississippi	2	2	1	1	2	1	2	2
South Carolina	16	13	14	16	14	14	14	15
Southwest								
Arizona	33	27	28	31	31	31	31	35
New Mexico	20	22	24	22	21	21	28	28
Colorado	90	92	105	109	113	111	124	133
Oklahoma	7	7	7	7	9	10	10	9
Texas	37	39	34	37	40	37	49	61
TOTAL	1,720	1,700	1,843	1,911	2,006	2,041	2,251	2,437

Source: 2012 Brewers Almanac

Table 3: Active craft breweries by state and decade of establishment

State	1970's	1980s	1990s	2000s
Alabama	0	0	0	5
Alaska	1	1	7	18
Arizona	0	1	11	29
Arkansas	0	0	1	6
California	6	20	93	215
Colorado	1	5	40	107
Connecticut	1	1	6	12
Delaware	0	0	4	7
Florida	1	2	14	37
Georgia	0	0	5	13
Hawaii	0	0	1	4
Idaho	1	4	11	22
Illinois	1	1	17	48
Indiana	1	2	12	40
Iowa	0	2	6	23
Kansas	0	2	8	16
Kentucky	0	0	2	10
Louisiana	0	0	1	7
Maine	1	2	14	24
Maryland	0	0	8	16
Massachusetts	0	2	12	32
Michigan	3	5	41	93
Minnesota	0	1	10	30
Mississippi	0	0	0	2
Missouri	0	3	10	39
Montana	0	1	12	28
Nebraska	1	1	9	18
Nevada	0	0	9	16
New Hampshire	1	1	8	14
New Jersey	0	1	14	23
New Mexico	1	1	11	23
New York	0	1	32	62
North Carolina	0	1	13	46
North Dakota	0	0	0	2
Ohio	1	2	20	39
Oklahoma	0	0	4	9
Oregon	0	1	34	90
Pennsylvania	3	4	19	81
Rhode Island	0	1	2	6
South Carolina	0	0	10	16
South Dakota	0	0	2	5
Tennessee	0	0	6	20
Texas	1	2	13	52
Utah	1	3	8	14
Vermont	0	1	7	16
Virginia	0	1	11	34
Washington	3	6	39	110
West Virginia	0	0	2	5
Wisconsin	2	3	30	67
Wyoming	0	0	6	13

Source: Craft Brewer's Association 2012

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