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Craft Beer in the USA: Strategic Connections to Macro- and European Brewers

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2.1 Evolution of US Craft Brewing

The craft beer movement began in the USA when Fritz Maytag bought the Anchor Brewing Company of San Francisco in 1965. Anchor had begun in 1896 but had fallen on hard times. Maytag revitalized the company by reverting to the traditional brewing practices found in Europe, where all-malt beers and ales were produced. This was a time when almost all other domestic brewers, such as Anheuser-Busch,

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Schlitz, Pabst, and Falstaff (the four leading producers in 1965), brewed light-bodied lager beers.¹ They could be described this way:

... pale lager beers vaguely of the pilsener style but lighter in body, notably lacking hop character, and generally bland in palate. They do not all taste exactly the same but the differences between them are often of minor consequence. (Alworth 2015)

The characteristic pale color and mild flavor of traditional domestic lagers were created by replacing between 35 and 75% of the barley malt content typical of European beers with adjuncts such as corn or rice (Goldammer 1999). Anheuser-Busch, Schlitz, Pabst, and Falstaff all brewed their beer in large breweries whose annual production capacities measured in the hundreds of thousands if not millions of barrels of beer.

In 1965, the Anchor Brewing Company had a capacity of 50,000 barrels but sold barely 1000 barrels of beer. It took a decade for sales to reach 7500 barrels and the venture to become profitable. It was this eventual success and Maytag's willingness to share his experience that inspired other entrepreneurs to start their own craft breweries in Northern California, beginning in 1977 with the New Albion Brewing Company. Anchor Brewing Company's resurrection from the almost dead along with the entry from scratch by New Albion marked the start of the craft beer revolution in the USA.²

Defining a start point for craft beer in Europe is difficult to do. What one might consider to be craft beer in the USA has been brewed in Europe for hundreds of years, though there is also a post-Maytag craft movement on the continent. We return to this later in this chapter.

¹The term "light" as used here does not refer to low-calorie beer but rather beer that is lighter (or milder) in flavor and transparency. We discuss low-calorie (also known as "light" or "lite") beer later in this paper.

²For a recent book length history of the craft beer segment in the USA, see Acitelli (2013). For an abbreviated version, see Elzinga et al. (2015).

Changes in both state and federal government regulations helped pave the way for new microbreweries in the USA. In 1977, federal excise tax reductions for smaller brewers went into effect.³ Federal legalization of homebrewing in 1979 and state legalization of brewpubs beginning in 1982 also facilitated entry. The expertise gained from homebrewing, and the resulting taste for craft beer that homebrewing caused, led many entrepreneurs to establish microbreweries that sold output off-premise and brewpubs that sold output on-premise.

At the same time, the craft beer segment in the USA was being birthed, the macro sector of the industry⁴ also was going through a transformation, which ultimately aided the rise of craft brewing. Figure 2.1 compares the number of craft brewers with the number of macrobrewers from 1947 to 2014 and illustrates the changes taking place in both the craft and macro sectors. One trend line reveals the dramatic consolidation that took place in the macro sector of the industry. The number of macrobrewers declined from 421 in 1947 to 10 by 2014. The second trend line reveals the equally dramatic increase in the number of craft brewers: from 1 in 1965 to 3464 in 2014. The two lines combined illustrate one of the most radical structural transformations to take place in any American industry.

Elzinga (2015) and Tremblay and Tremblay (2005) discuss reasons for the decline in numbers and the increase in plant size of the surviving macrobrewers. Technology changed during the 1950s through the 1980s, causing the output necessary to exploit scale economies in the production and marketing of beer to increase dramatically.⁵ Many of

³For brewers that produced less than 2 million barrels annually, the excise tax rate was reduced from \$9.00 to \$7.00 per barrel on the first 60,000 barrels produced. When the federal tax rate on larger brewers rose to \$18.00 per barrel in 1991, the tax rate on brewers that produced less than 2 million barrels annually remained at \$7.00 per barrel on the first 60,000 barrels produced.

⁴“Macrobrewer” means any of the large brewers in the USA that produce only (or mainly) lager beer, either as a full calorie or low-calorie (“light beer”) product. Given their combined market share, for the past three decades, the macro brewers have been those producing product within the brand portfolio of Anheuser-Busch, Miller, and Coors. Another term sometimes used for macro brewers is “big beer” or “the major brewers.”

⁵See also Tremblay and Tremblay (2005) and Gokhale and Tremblay (2012).

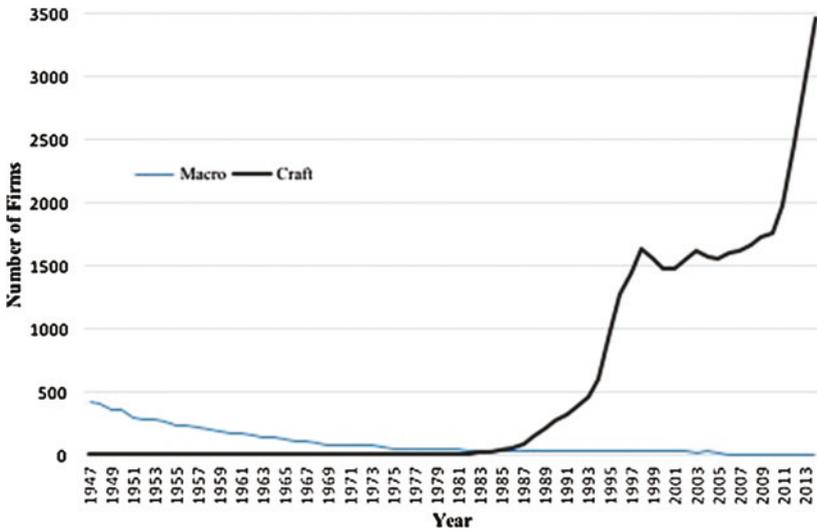


Fig. 2.1 Number of U.S. macro and craft brewers, 1947–2014

the macrobrewers who exited operated breweries with output ranging between 250,000 barrels to 1.5 million barrels per year. Even with capacity of this size, these firms shouldered higher costs than breweries operated by firms like Anheuser-Busch, Miller, and Coors (the leaders in the 1980s), whose plant capacity exceeded 4 million barrels. In a battle for growth among the macrobrewers, high-cost capacity was wrung out of the industry. Figure 2.1 illustrates how the market disciplined high-cost brewers.

US macrobrewers chose product characteristics that appealed to as many consumers as possible. The result was a more homogeneous and milder lager beer which was accomplished by using less hops and by replacing malt with adjuncts. In 2000, a barrel of beer in the USA was produced with 62% fewer hops and 21% less malt than in 1950.⁶ Beginning in the 1950s, consumer preferences shifted toward

⁶In contrast, the craft segment has generated greater aggregate hop usage. According to the US Department of Agriculture, growing demand for craft beer led to an 11% increase in hop production in 2015 (CNBC 2015).

low-calorie diets, prompting major manufacturers to produce lighter and lower calorie foods and beverages. Brewing was not immune to this shift in tastes.⁷ The height of this trend was reached with the development of low-calorie beer (or light beer), first marketed to a mass audience as Miller Lite and soon followed by Coors Light and Bud Light.⁸

As consolidation took place in the macro sector, craft brewers began to enter the market by filling up product niches left unfilled because of the homogenization of macro beer. The typical craft brewer produced darker lagers and ales similar to those being brewed in many European countries. In a sense, the craft beer segment in the USA represents the introduction of malt beverages that had been brewed outside the USA for many years—but were now being produced by brewers *inside* the USA. However, the entrepreneurs in the craft segment are largely home-grown and not born in Europe, as were many of the original German macrobrewers.

In 1985, the number of craft brewers in the USA (37) exceeded the number of macrobrewers (34) for the first time. Entry was robust until the shakeout of the late 1990s. The number of craft brewers peaked at 1625 in 1998 and fell to 1469 by 2000. Distributional bottlenecks and the production of poor quality beer by some enthusiastic but ill-trained entrants are two reasons for the shakeout (Tremblay and Tremblay 2005, 2011). Since then, the number of craft brewers in the USA grew slightly through 2010 when it reached 1756. After 2010, however, there was a resurgence in entry, with the number of craft brewers reaching 3464 in 2014.

⁷In fact, as early as August 1948, *Consumer Reports* reported that “Today’s beers have evolved from pronounced, distinctive flavors toward a blander uniformity” after testing 29 brands of beer (*Consumer Reports* 2016).

⁸In a survey of major brands, light beer had an average of 26% fewer calories and 16% less alcohol than traditional American lager (*Consumer Reports* 1996). The transformation of brewing in the USA caused by the success of the light beer category is frequently overlooked because of the rapid growth of the craft beer category and the disproportionate amount of press devoted to craft beer. Light beer’s share was 0.3% in 1974 but grew to 22% in 1985 and 43% in 2000 (Tremblay and Tremblay 2005). To put the light beer category into perspective, in 2014 sales of the leading brand of light beer, Bud Light, exceeded 36 million barrels, while total craft beer sales was less than 22 million barrels. Nevertheless, in the last decade, Bud Light’s share has declined as craft’s share has risen dramatically.

Table 2.1 Output of leading craft brewers

Brewer	2010	2011	2012	2013	2014
Boston	2010	2096	2150	2325	2550
Sierra Nevada	786	858	960	984	1067
New Belgium	661	713	765	792	945
Craft Brew Alliance ^a	585	623	675	726	792
Spoetzl	431	487	524	568	600
Lagunitas	102	161	235	400	599
Deschutes	203	223	253	286	335
Bell's	154	189	216	248	319
Stone	115	149	177	213	287
Dogfish Head	121	144	172	202	228

Output is measured in 1000 barrels. *Source* Beer Industry Update (2015).

^aIncludes sales of the Widmer, Redhook, and Kona brands

Recent production figures of the leading 10 craft brewers are listed in Table 2.1. As the table indicates, the craft segment is relatively unconcentrated. The three leading producers are Boston Brewing, Sierra Nevada, and New Belgium who currently brew over 24% of all craft beer. All of the top craft brewers have experienced substantial growth in sales from 2010 to 2014. The Craft Brew Alliance was established in 2008 with the merger of the Widmer, Redhook, and Kona brewing companies. Spoetzl is a pre-Maytag era brewer from Texas that now specializes in craft. When the craft segment began, Spoetzl would not have counted as a legitimate craft brewer.⁹ We include it in the table, however, because Spoetzl produces craft beer today.

Imports were the first to penetrate the US macro beer market by exploiting the homogenization of American beer (see Fig. 2.2). But when the craft beer segment began, imports were very small. In 1970, the import share of US beer consumption was less than 0.7%, while the macrobrewers held a market share of over 99%. In the same year, the lone craft brewer, Anchor Brewing, contributed only 1000 barrels to a market with total production of 125 million barrels. Along with Anchor's resurrection, the growth in demand for imported beer during the 1970s may have served as a signal that domestic craft brewing could

⁹For further discussion of this issue, see Tremblay and Tremblay (2005, Chap. 5).

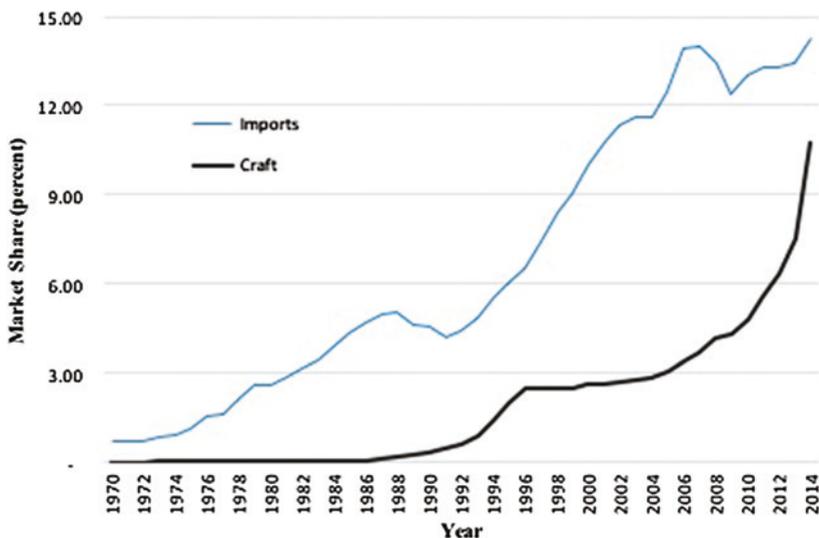


Fig. 2.2 U.S. Import and craft market shares, 1970–2014

be profitable. Imported brands have two important craft-like qualities. Like domestic craft beer, most imports were either dark ales, such as Guinness Stout, or all-malt lagers, such as Heineken and Beck's. In addition, imports were able to sustain growth in spite of the fact that imported brands command prices that are over 40% higher than premium-priced domestic lagers.¹⁰

By 1986, the import share grew to 5%, while the craft share was a statistical blip: just 0.1%. Thereafter, craft gained on imports until the shakeout in the late 1990s. It was not until 2005 that the craft sector began to regain ground on imports. Since then, import growth has stalled in the face of rising demand for craft beer. By 2014, the three sectors of US brewing were divided: 75% for the macro sector, 14.3% for imports, and 10.7% for the craft. The year 2014 was a breakthrough for craft beer: The segment's market share exceeded 10% for the first time.

¹⁰These features generated an image of quality and status that later led Jim Koch, president of Boston Beer, to call for a new "better beer" category for imports and domestic craft beer (*American Brewer* 2003).

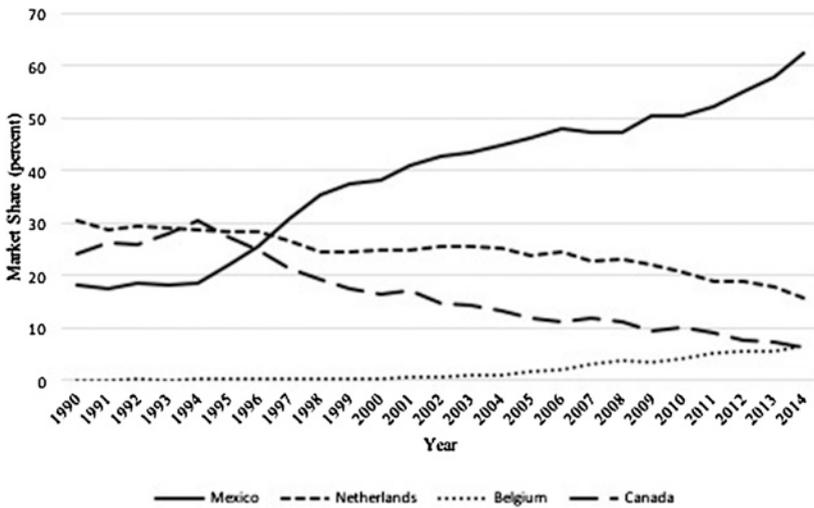


Fig. 2.3 U.S. Imports from four leading countries, 1990–2014

Figure 2.3 displays the trends in US beer imports from the four leading export countries, 1990 through 2014. In descending order for 2014, the largest beer exporters to the US are Mexico, the Netherlands, Belgium, and Canada. In the last 5 years, Belgian imports have gained ground on beer brewed in Ireland (ranked 5th in 2014) and Germany (ranked 6th in 2014). The success of Stella Artois has helped drive Belgium’s growth in share (see Table 2.2). The decline in Germany’s share is partially due to the fact that the Beck’s brand is no longer defined as a true import. Since 2012, Anheuser-Busch InBev (AB InBev) has been brewing Beck’s beer in St. Louis (Gershman 2015).¹¹ Many American beer consumers want their import beer to have been imported. This is not something new. Years earlier, Miller acquired the Lowenbrau brand, then a prominent German import. When Miller began brewing Lowenbrau domestically, the brand lost its import cachet and demand decreased.

¹¹In order to be legally defined as an import beer, it must be brewed outside the USA.

Table 2.2 Import share (%) of the top 10 brands of beer imported into the U.S

Brand (beer style, country of origin)	2000	2005	2010	2014
1. Corona (pale lager, Mexico)	27.8	30.7	26.4	26.6
2. Modelo Especial (pale lager, Mexico)	1.9	4.3	8.4	15.3
3. Heineken (pale lager, Netherlands)	19.6	18.7	15.5	13.5
4. Dos Equis (pale lager, Mexico)	1.6	1.8	3.6	6.1
5. Stella Artois (pale lager, Belgium)	0.1	1.2	3.5	5.9
6. Corona Light (pale lager, Mexico)	1.5	2.8	3.5	3.5
7. Tecate (pale lager, Mexico)	4.1	4.6	4.7	3.4
8. Guinness (stout, Ireland)	3.7	3.6	3.5	3.4
9. Labatt Blue (pale lager, Canada)	5.2	3.8	2.8	2.1
10. Labatt Blue Light (pale lager, Canada)	1.2	1.7	1.9	1.6
Total	66.7	73.2	73.8	81.4

Brands are ordered by the 2014 rank in import share. *Sources* Beer style information obtained from Campbell and Goldstein (2010). Market share information is obtained from *Beer Industry Update*, various issues

The rapid growth in US craft beer has displaced some of the demand for the darker lagers and ales brewed in the United Kingdom, Ireland, and Germany. Craft beer appears to have been less competitive with lighter imported lagers, however. The prominence of the imported brands of today's light lagers is indicated in Table 2.2. In 2014, nine of the top ten imports were light lager beers, seven of which are sourced in Mexico and Canada.¹² These lighter imports have taste profiles similar to domestic macro beer and have been more insulated from competition from the craft brewers. Notable examples include Corona, Stella Artois, and Labatt Blue.

As seen in Table 2.3, craft beer generally commands a price premium over the import, super-premium, and premium categories of beer, making it less affordable for low income or high consumption beer drinkers. A consumer survey by Mediamark Research (as reported in *Beer Marketer's Insights* 2010) confirms that high-income consumers are more likely to buy craft beer. Consistent with this, using regression

¹²Another reason for their success is their location, which gives beer that derives from Canada and Mexico a transportation cost advantage over imports from Europe. Beer is mostly water and expensive to ship. In addition, quality can be compromised through increased exposure to light and heat when beer is shipped long distances.

Table 2.3 AVERAGE supermarket price per case by beer category

Beer category	2006	2007	2008	2009	2010	2011	2012	2013	2014
Import	25.68	26.75	27.02	27.26	26.96	27.27	27.37	27.66	27.97
Craft	27.20	28.11	29.64	30.63	31.21	31.96	33.08	33.97	34.95
Super-premium	20.51	21.62	23.09	23.90	24.06	24.46	25.01	26.32	26.62
Premium	16.71	16.91	17.35	17.91	17.99	18.28	18.44	18.63	19.78

Source Beer Industry Update (various issues). Values are in nominal dollars per case of 24 (12 oz) containers. Categories do not include light beer

analysis and state-level data to explain the entry patterns of craft brewers, Elzinga et al. (2015) found entry was greatest in states with higher average incomes. The authors also found that craft entry was more likely in states with more favorable tax rates for small brewers, more lenient brewpub laws, and larger populations. This suggests that craft brewing will continue to thrive with growing economic prosperity and a favorable legal environment.¹³

Over the short history of the craft beer segment in the USA, entry numbers have far exceeded exit numbers. Figures 2.4, 2.5 reveal how entry reduced overall concentration of craft beer production at the national level, as measured by the four-firm concentration ratio and the Herfindahl-Hirschman Index (HHI). Since the late 1980s, the four-firm concentration ratio has fluctuated at around 40%, and the HHI has been less than 1000. To the extent relevant geographic markets are regional rather than national, these concentration figures may be understated in some regions of the country.

We now return to the origins of craft brewing in the USA. In the next section, we focus on the contributions of key figures to the emergence of the craft sector.

¹³For example, Elzinga et al. (2015) document that craft brewing is less prevalent in Southern states, where local laws have been least favorable to brewpubs and homebrewing. See this paper for a more complete discussion of the reasons for craft segment growth.

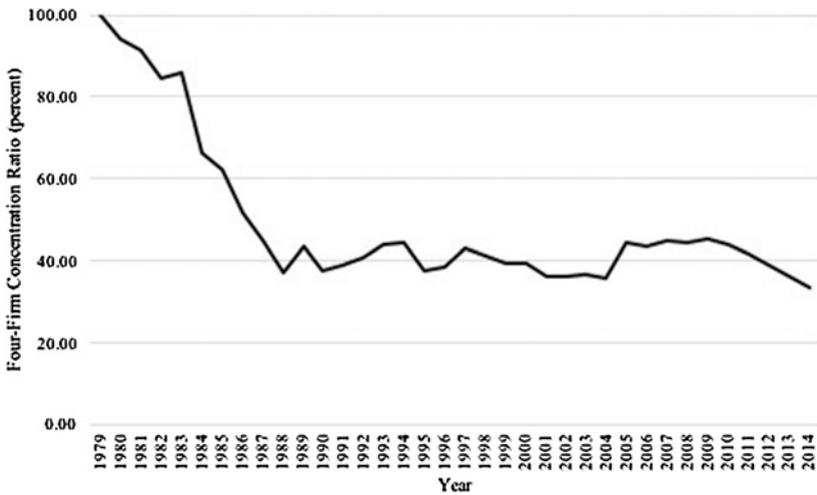


Fig. 2.4 Four-firm concentration ratio, 1979–2014

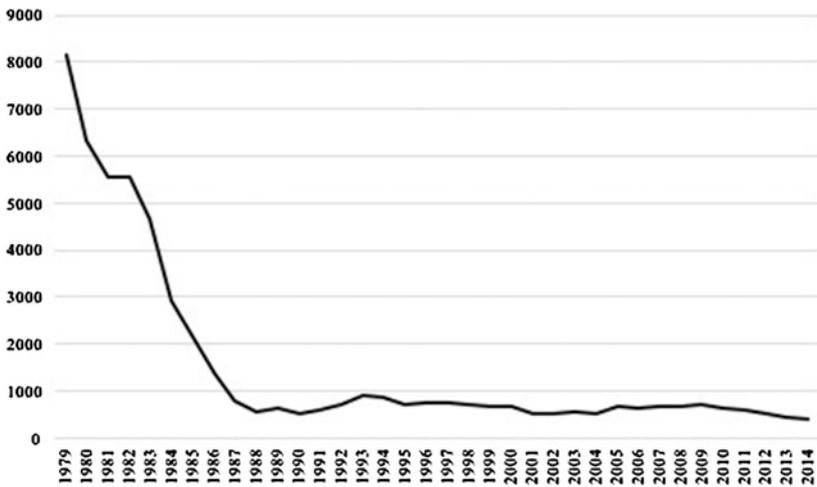


Fig. 2.5 Herfindahl-Hirschman index, 1979–2014

2.2 The Early Brewers, Promoters, and Brewmeisters¹⁴

While Fritz Maytag represents the Schumpeterian innovator of craft beer, three other brewers and three promoters of craft beer merit particular mention. In addition, two chemists played important roles in the development of craft beer.

Maytag had been a consumer of Anchor Steam Beer when he heard the firm was going to go dark. The closure would mean the demise of the last brewery in the USA producing what would now be called craft beer. Maytag bought the assets of the Anchor Brewing Company in 1965. According to Acitelli (2013), the firm had one employee at the time, when Maytag began to learn the art and science of brewing in order to resurrect the firm and undertake the task of marketing the brand to on-premise accounts in the San Francisco Bay Area.¹⁵

While other craft brewers who followed Maytag made important contributions to the development of the segment, Maytag deserves encomia for more than being the first to establish a craft beer brewery.¹⁶ In addition to reviving steam beer, Maytag brewed the first American India Pale Ale (IPA), “brought back traditional porter, revived the custom of a spiced holiday beer, created the first American barley wine, and brewed the first American wheat beer since Prohibition” (Fritz Bows Out 2010). Maytag also recognized at the outset that his small operation could never match the cost efficiencies of modern, large-scale brewing facilities. To cover high per-unit production and packaging costs, he knew that his beer would have to sell at retail prices matching those of expensive imported brands. The task was to brew beer that would

¹⁴This section is extracted directly from Elzinga et al. (2015). We thank the American Association of Wine Economists for permission to reprint this section.

¹⁵Anchor Steam Beer technically is a lager, but the recipe made it taste different than a lager. Acitelli describes it as having a “citrusy finish” and a “heavier ale-like mouthfeel” (2013).

¹⁶Some argue that Anchor Brewing was not the first microbrewery because it was a revitalized brewery rather than a new establishment. We think that this unduly undervalues Maytag’s contribution. For example, by 1983, the success of Anchor Brewing caused over 100 individuals to contact Maytag for advice about opening a new microbrewery. For further discussion, see Elzinga (2011) and Tremblay and Tremblay (2005).

be worth the candle. In the process, Maytag inspired others to line up behind him. Eight important “others” are cited below in groupings of three, three, and two.

2.2.1 The Early Brewers

If Jack McAuliffe had not been such an excellent welder, the craft beer segment might be different today. McAuliffe took beer-making skills that he had developed as a home brewer and combined them with his talent for welding, his training as an engineer, and his experience as an electrician to form New Albion Brewing Company in 1976, a little more than a decade after the start of Anchor Steam Beer. Stimulating McAuliffe’s transition from homebrewing to small-scale commercial production was a visit to Maytag’s operation.

Having settled in Sonoma, California, McAuliffe was one of the first to recognize the demand for craft beer as a drink to be paired with food, which was the business model of the wine industry that was all around him. He also demonstrated that small-scale production could produce a product whose taste signature stimulated the demand for craft beer. In doing so, McAuliffe influenced other craft brewers. What economists call first-mover advantages did not work for McAuliffe. New Albion exited the market in 1982. Several of those who learned from McAuliffe enjoyed a second-mover advantage. Acitelli (2013) suggests that New Albion failed because it was too small to be profitable.

As a high school student, Ken Grossman encountered a book by Fred Eckhardt, *A Treatise on Lager Beers*, and began homebrewing. A few years later, he was teaching homebrewing in Colorado. At this time, he visited the brewing facilities of McAuliffe and Maytag and left with both inspiration and information. Gifted with the same mechanical skills as McAuliffe, Grossman originally partnered with Paul Camusi to found the Sierra Nevada Brewing Company in Chico, California, which opened its doors in 1981. In 2014, the Sierra Nevada Company opened a brewery far from the Sierra Nevada mountains: a 350,000 barrel facility near Asheville, North Carolina. In 2013, the Sierra Nevada firm was the second-largest craft brewer, with sales of almost 1 million barrels.

Jim Koch was born into a family with a brewing history but began his career at the Boston Consulting Group, where his clients were anything but craft brewers. His family urged him not to consider brewing as a livelihood—advice that he took for a while and then rejected. Unlike McAuliffe and Grossman, Koch lacked skills in cobbling together pipes and kettles, but he had management expertise and experience when he founded the Boston Beer Company. Rather than build a craft brewery from scratch, Koch adopted the business model of using the facilities of an incumbent brewer (Pittsburgh Brewing Company) to produce craft beer to his specifications. He essentially bought capacity at marginal cost. The irony that Koch's brand, Samuel Adams, was being brewed at a facility accustomed to turn out the Iron City brand was not lost on some purists in the craft beer movement.¹⁷

Eventually, the Boston Beer Company integrated vertically into brewing, but this was after the Samuel Adams brand portfolio had become the best-selling craft beer in the USA. The Boston Brewing Company's output of almost 2.3 million barrels in 2013 handily exceeded the cap for the tax exemption designed to aid the craft beer segment, allowing Koch to join the Bloomberg Billionaires Index the following year.

2.2.2 The Early Promoters

If Fritz Maytag was the John the Baptist of craft beer—a voice crying in the wilderness—three individuals brought the message of craft beer to a much broader audience. They did so not by starting craft breweries, as had been done by Maytag, McAuliffe, Grossman, and Koch. Instead, they stimulated the demand for craft beer. The three who merit mention are Fred Eckhardt, Charles Papazian, and Michael Jackson.

The stimulation of demand for craft brewing was achieved through the dissemination of information about (1) homebrewing, which

¹⁷The Boston Beer Company is not alone in the craft segment to use contract brewing. Schlafly cleverly markets itself as the “largest American-owned Brewery in Missouri”—following Anheuser-Busch's acquisition by InBev. But while Schlafly in bottles is produced in Saint Louis, Schlafly in cans is brewed and packaged under contract with the Stevens Point Brewing Company in Wisconsin.

weaned many beer consumers away from the lager products of Big Beer; (2) craft beer production; and (3) beer as a serious consumption good to be paired with food, rather than as a liquid that quenched thirst on a hot day or offered an inexpensive buzz.

Homebrewing remains such an important introduction to the purchase of commercially produced craft beer that the Brewers Association (the trade association for craft brewers) promotes the American Homebrewers Association. One can hardly imagine Nike promoting the art and craft of making sports shoes at home.

After a visit to Maytag's brewery, Fred Eckhardt began to brew craft beer at home that was designed to mimic the quality of Anchor Steam. In addition to homebrewing for his own consumption, Eckhardt taught homebrewing to others and out of this came his book, *A Treatise on Lager Beers*, published in 1970 (which influenced Ken Grossman). Thousands of copies of this book were sold; the widespread practice of homebrewing led in turn to the reversal of many state laws (rarely enforced) that banned homebrewing. We are unaware of any US industry in which home production led to more commercial start-ups than took place in craft beer. Those who engaged in homebrewing changed their beer preferences; they became more likely to select brands of craft beer when consuming on-premise. Homebrewing acquainted many consumers with the flavors and organoleptic qualities of different kinds of beer. It also led pioneers like McAuliffe and Grossman to begin their own commercial ventures.

Like Eckhardt, Charles Papazian was not a producer of craft beer but, rather, a promoter of the product that others were commercially producing. He founded the American Homebrewers Association and also wrote about homebrewing. While Eckhardt's book was called a treatise, Papazian's book was titled *The Complete Joy of Homebrewing*. Papazian also began *Zymurgy*, a magazine that was both a how-to and a paean to homebrewing.¹⁸ Those who joined the American Homebrewers Association or became subscribers to *Zymurgy* developed tastes for beers that made them customers of the craft beer segment. It also made them

¹⁸Zymurgy is the process of yeast fermentation. *Zymurgy* was not the first periodical devoted to home production of beer. Eckhardt's *Amateur Brewer* preceded *Zymurgy*.

apostles of craft beer to their friends; those who did not home brew became customers of those who brewed commercially.

The first issue of *Zymurgy* was published in 1978, the same year in which Congress decriminalized the brewing of beer at home. Prior to 1978, home brewers and promoters of homebrewing had no reason to fear raids on their houses by federal authorities. But the demise of this legislation left over from Prohibition was a social signal that the home production and consumption of beer had no taint of illegality.

Papazian's organization of the Great American Beer Festival, first held in 1982 in Boulder, was a harbinger of craft beer promotion. People came to sample beer and paid to do so. The beer festival was an eye opener for city officials because social events centered on craft beer did not turn into drunken brawls or occasions for municipal property damage. This was consistent with what Papazian observed when he was a University of Virginia college student experimenting with homebrewed beer: Students who drank craft beer "got happy, not stupid" (Acitelli 2013).

The Great American Beer Festival and its progeny were not like college spring breaks at beachside cities. Beer festivals brought people from out of town with discretionary income to be spent not only on craft beer but also restaurants and lodging. Today, no city would turn down an application for a beer festival. Indeed, a small industry has sprung up to organize and promote these festivals.

The writer Michael Jackson became to beer what Robert Parker Jr. was to wine. Jackson's book, *The World Guide to Beer*, was the first to reach a broad audience about the tastes of different beers. Commenting on the phenomenal sales of Jackson's book, Acitelli describes Jackson this way: "Beer in the twentieth century had its piper" (2013). Although Jackson's book was not about the still-nascent craft beer industry in the USA (the book was published at about the same time that McAuliffe was starting the New Albion Brewing Company), Jackson did give favorable mention to Maytag's Anchor Steam Beer company.¹⁹ Jackson's writings acquainted millions of readers with what

¹⁹"No beers in the United States are more idiosyncratic than those produced by the Anchor Steam Brewing Company of San Francisco... The smallest brewery in the United States has added a whole new dimension to American brewing" (quoted in Acitelli 2013)

he called the “beer style”—beers from Asia, Europe, and the Caribbean were discussed and explained. At the time that American readers were coming to understand beer other than Big Beer, the craft segment was starting to ramp up in order to provide this beer. Jackson, whose reputation was worldwide, occasionally contributed to *Zymurgy* and wrote a preface to *The Complete Joy of Homebrewing*.

The craft beer segment in the USA would not be what it is without Jackson’s influence as an informant about the vast multiplicity of beers that were being brewed and, starting with Fritz Maytag, came to be brewed in the USA to satisfy curious or intrepid consumers.²⁰

2.2.3 The Brewmeister

In addition to the three brewers and three promoters just described, two other individuals played an important role in the craft beer segment, though they were not entrepreneurs and never operated a craft brewery. One was a professor, Michael Lewis, and the other was a brewer-consultant, Joseph Owades. Both were technically trained and scientifically versed in the application of chemistry to brewing. Both profoundly affected the impetus toward craft brewing in the USA.

In 1970, Lewis was hired as a Professor of brewing science at the University of California Davis (Acitelli 2013). He was technically trained in microbiology and biochemistry. Lewis knew brewing was an art, but he also knew it was a science. The timing and location of his academic appointment was fortuitous. Five years earlier, Maytag had purchased Anchor Steam Brewing, not far away, in San Francisco. Lewis offered McAuliffe technical advice on how to start a craft brewing operation. Later, Lewis left UC-Davis to teach the science and production of craft beer on site at the New Albion Brewing Company.

Joseph Owades is a brewmeister of high repute in both big beer and craft beer. Associated with the Center for Brewing Studies, Owades was

²⁰Jackson has been described as “the most famous and influential beer writer ever—perhaps the most influential food writer on any subject of the twentieth century” (Acitelli 2013).

influential in the chemistry that produces light (or reduced-calorie) beer. Miller Lite, Bud Light, and Coors Light became the heavyweight brands at MillCoorWeiser. This alone would put Owades in a beer industry hall of fame. But on the craft side of the street, Owades also had an important role. First, he was a consultant to Maytag. Second, he is credited with the idea of a virtual brewery to serve the craft sector (Acitelli 2013). Owades counseled Matthew Reich (at the Old New York Brewing Company) to engage in contract brewing with a large, regional brewer that had excess capacity. The beer would be brewed in accordance with the Reich/Owades recipe. But Reich would not have to come up with the economic resources to finance the capital equipment. Under this business model, a craft brewer could sell his beer at marginal cost.

As mentioned earlier, the contract beer business model turned out to be a bonanza for Jim Koch and the Boston Beer Company, which became the largest craft brewer before ever owning a piece of capital equipment. Owades also was influential in designing the brewing recipe for the Samuel Adams brand, for which he became an equity owner in the Boston Brewing Company. After Maytag, all things considered, Owades is the most influential person in craft beer.

The expertise and strategies brought to the table by these players spurred the craft beer movement in the USA. Continued success in the presence of large, national producers has turned, in part, on the different marketing strategies of macros and crafts. In the next section, we discuss marketing and other strategic interactions between macrobrewers and craft brewers.

2.3 Marketing and Strategic Interactions Between US Craft and Macrobrewers

2.3.1 Marketing Differences Between Craft Brewers and Macrobrewers

The Johnson and Myatt (2006) model best explains why US macro- and craft brewers have chosen sharply contrasting marketing strategies. In their model, firms within the same industry make different strategic

choices when they have different cost structures and their product design and marketing actions rotate demand. When this occurs, the low-cost producer chooses product characteristics and marketing campaigns that appeal to mass markets (characterized by a relatively flat demand), while the high-cost producer chooses product characteristics and marketing campaigns that appeal to niche markets (characterized by a relatively steep demand).

As discussed in the previous section, macrobrewer survival requires a consumer base large enough to exploit significant scale economies. In order to reach minimum efficient scale, the macrobrewers produced a light homogeneous product that appealed to the average American consumer. Another tactic for growth was to develop advertising campaigns that had broad mass appeal.

After World War II, the effectiveness of mass advertising was enhanced by network television. In 1950, only 9% of US households had a television set, a number that rose to 88% in 1960 and 96% in 1970. The growing popularity of television gave a marketing advantage to large national producers who had a scale of operation (in terms of output and geographic availability) that enabled their beer to be advertised on network television.²¹ This was an era when television advertising helped create such memorable brands as Heinz ketchup, Oreo cookies, and McDonald's fast-food restaurants. In brewing, successful Clydesdale ads and award winning Super Bowl ads touted Budweiser as the "King of Beers," the number one selling brand in the USA. In 2014, the Budweiser brand portfolio (e.g., Budweiser, Bud Light, and Bud Ice) commanded a 28% share of the US beer market.²²

²¹In general, a firm that wanted to advertise on television during the 1950s and 1960s had to advertise nationally or not at all. The advent of spot advertising that allowed firms to use local television ads did not completely eliminate the national producers marketing advantage, however. For example, in 1982, the cost of reaching 1000 viewers between the ages of 17 and 50 on prime time television was \$14.14 for national ads and \$23.49 for spot ads (Greer 1998).

²²This marketing advantage began to erode in the 1990s with the development of cable television and cable programming. For further discussion of these marketing issues as they relate to brewing, see George (2009, 2011), Iwasaki et al. (2008), and Tremblay and Tremblay (2005).

Craft brewers pursued very different marketing strategies. The typical craft brewer is small, sells primarily within its home state or potentially states contiguous to it (but not nationally), and chooses product characteristics and a marketing approach to exploit market niches not served by the macrobrewers. By producing a variety of different styles of beer in relatively small batches, the typical craft brewer has substantially higher costs than macrobrewers.²³ Craft brewers are able to cover these higher costs by producing beer that appeals to a small group of consumers who have idiosyncratic (i.e., not average or mainstream) tastes and are willing to pay higher prices for the taste profile and product differentiation of craft beer (see Table 2.3).

Several early craft brewers attempted to avoid the high cost of small-scale production by engaging in contract brewing (see Carroll and Swaminathan 2000; Tremblay and Tremblay 2005). This occurs when a craft brewer outsources production to an existing macrobrewer with excess capacity, essentially allowing the craft brewer to procure capacity at marginal cost. Jim Koch effectively used this strategy to build the Boston Beer Company into the largest craft brewer in the USA.²⁴ As successful contract craft brewers grew in size, however, they began to produce beer in their own facilities, and the importance of contract brewing has diminished. Contract brewing accounted for 18% of craft beer production in 2002 but less than 1% in 2015.²⁵

²³Cost data for craft brewers are limited. However, in 2014, the average craft brewer produced 6300 barrels, far below estimates of minimum efficient scale of between 20 and 25 million barrels. In that year, AB InBev, the largest macrobrewer, produced 96 million barrels, and the Boston Beer Company, the largest craft brewer, produced 2.55 million barrels. For 2004, Tremblay and Tremblay (2007) estimate that the average cost of a barrel of beer at Anheuser-Busch (before its merger with InBev) was 15% lower than the average cost at Boston Beer.

²⁴During the 1980s and 1990s, Boston's beer was produced under contract with the Blitz Weinhard Brewing Company in Portland, Oregon, High Falls (Genesee) Brewing Company in Rochester, New York, Hudepohl-Schoenling Brewing Company in Cincinnati, Ohio, and Pittsburgh Brewing Company in Pittsburgh, Pennsylvania.

²⁵This information is obtained from the Brewers Association Web page at www.brewersassociation.org. The Brew Hub Corporation of Florida has extended the concept of contract brewing. Brew Hub calls itself a brewing partner that contracts with craft brewers to not only brew beer but to package and distribute it as well. It currently has facilities in Florida and plans to build additional facilities in the Northeast, Midwest, Texas, and the Southwest. This information is available at the company's Web page at <http://brewhub.com>.

Table 2.4 Advertising per barrel of the leading domestic and imported brands, 2000–2014

Beer category brand	2000	2005	2010	2014
Domestic Premium				
Budweiser	4.57	4.66	5.61	7.43
Coors	23.25	2.82	10.47	19.51
Miller GD	4.70	9.69	7.75	–
Domestic Light				
Bud Light	3.42	3.87	4.87	7.61
Coors Light	7.21	9.06	6.34	7.66
Miller Lite	5.61	8.53	7.45	9.35
Domestic Super Premium				
Michelob	7.96	1.81	9.03	10.08
Craft				
Boston	11.90	20.46	14.07	15.87
Import				
Corona (Modelo)	6.57	4.91	4.92	13.97
Guinness (Diageo)	5.87	12.14	–	–
Heineken	12.48	14.02	8.34	23.34
<i>Industry average</i>	4.54	5.69	4.79	6.67

Advertising is measured in \$1000s. *Source* TNS Media Intelligence/CMR as reported in *Beer Industry Update* (various issues)

Craft brewers not only distinguished themselves from the macro-brewers by offering brews with unique taste profiles, they also avoid mass market advertising on television and radio and devote little money to traditional print media. Instead, they use something that is called “guerrilla marketing,” which exploits low-cost marketing techniques to maximize product publicity (Levinson 2007). In general, this involves the Internet, viral, and street exposure, with craft brewers vying for consumer attention by sponsoring local community events and charities, using social media to promote their brands, and riding on the “buy local” movement.²⁶

²⁶See Hindy (2014) for further discussion of the marketing tactics used by craft brewers. See Tropp (2014) for a discussion of the “buy local” movement for food, which is motivated by the belief of some consumers that locally produced foods are of higher quality, that doing so supports local business, and that production involves less use of fossil fuels. A buy local movement has benefited microbreweries in Italy as well (Garavaglia 2015).

The notable exception is the Boston Beer Company. Unlike the typical craft brewer, Boston has invested heavily in broadcast advertising. As Table 2.4 reveals, Boston's per barrel spending on advertising has exceeded that of most macro brands and is on par with most imported brands. Boston can be characterized as a hybrid brewer that produces all-malt beers and ales like a craft brewer but markets its beer like a macrobrewer—and produces on a scale today that never was anticipated by craft brewers in the beginning of the craft segment.

2.3.2 Macrobrewer Responses and Other Strategic Issues

The success of the US craft beer sector has not gone unnoticed by macrobrewers. One response has been for macrobrewers to produce their own versions of craft style beer. In the mid-1990s, Anheuser-Busch introduced the Elk Mountain brand, Miller introduced Ice House, and Coors introduced Blue Moon. In order to distance these brands from their macro connections, their packaging did not brandish the name of the controlling company. Consequently, these macro brands are sometimes called “phantom” or “faux” brands of craft style beer. The most successful of these has been Blue Moon. Aficionados of craft beer consider Blue Moon to be “crafty,” not craft. If Blue Moon was an independent beer company or was classified as a craft brewer, in 2014, it would have ranked second in sales behind Boston Beer.²⁷

Another tactical response to the craft beer segment has been for macrobrewers to purchase an interest in existing craft brewers. This began in 1988 when Miller acquired the Leinenkugel Brewing Company (Chippewa Falls, WI). Miller also purchased a partial interest in the Celis (Austin, TX) and Shipyard (Portland, ME) beer companies in 1995. Anheuser-Busch acquired an interest in the Redhook Brewing Company (Seattle) in 1994 and the Widmer Brothers Brewing (Portland, OR) in 1997. Acquisition interest waned after the shakeout

²⁷In 2014, Blue Moon sold 2.1 million barrels. In the same year, Boston Beer, the largest craft brewer, sold 2.55 million and Sierra Nevada, the second-largest craft brewer, sold 1.067 million (*Beer Industry Update*, 2015).

in the craft segment in the late 1990s. But the recent growth in the craft sector has led to a flurry of acquisitions and formal affiliations between macro- and craft brewers. In the last several years, AB InBev has purchased six craft brewers: Goose Island (Chicago), Blue Point (Patchogue, NY), 10 Barrel (Bend, OR), Elysian (Seattle), Golden Road (Los Angeles), and Devils Backbone Brewing Company (Roseland, VA). Goose Island's most famous brand is "312 Goose Island" (the area code for Chicago is 312). "312 Goose Island" is now brewed in AB InBev's four million barrel capacity brewery in Baldwinsville, New York (where the area code is 315). In late 2015, MillerCoors reached an agreement to purchase Saint Archer Brewing (San Diego), the Dutch brewer Heineken purchased a 50% stake in Lagunitas Brewing (Petaluma, CA), and the alcoholic beverage conglomerate Constellation Brands Inc. purchased Ballast Point Brewing (San Diego) for \$1 billion.²⁸

These formal relationships generate costs as well as benefits to the craft and macrobrewer. The craft brewer benefits by gaining access to the distribution network of the national macrobrewer. The macrobrewer gains immediate entry into the growing craft sector. However, many in the craft community restrain their enthusiasm for such relationships. Among craft brewers, independence is so highly valued that a brewer can be considered a craft brewer (by the Brewers Association) only if less than 25% of the brewery is owned by a macrobrewer (or other non-craft alcoholic beverage company). Thus, a close connection to a macrobrewer can tarnish a craft brewer's goodwill among consumers and ostracize it from fellow craft brewers as well.

Rivalry between AB InBev and craft brewers intensified in early 2015 when AB InBev used its marketing dollars during the Super Bowl to promote Budweiser at the expense of craft beer. The ad, called "Brewed the Hard Way," showed young, attractive male and female actors drinking Budweiser. The ad proclaims that Budweiser is proud to be a macro beer that is brewed "the hard way." At the same time, the ad depicts

²⁸For further discussion of these mergers, see Dulaney and Mickle (2015), Leonard (2015), Mickle (2015a, b), Pierson (2015), and the SABMiller Web page at www.sabmiller.com/media-releases/saint-archer-brewing-company.

craft beer drinkers in a negative light, as bearded snobs who sniff and sip “pumpkin peach ale,” rather than real beer.

In response, a video company in the Northwest countered with an ad that promotes craft over macro beer, claiming that only craft beer is brewed with full flavor the “actual hard way,” by hand.²⁹ Superficially, these ads are accurate in that Budweiser drinkers tend to be blue-collar and craft beer drinkers tend to be white-collar workers with above average incomes. The Budweiser ad suggests that the continued slide in its market share required a desperate measure and is indicative of a “Hail Mary” strategy in marketing (Aron and Lazear 1990).³⁰ This is in reference to a trailing football team that throws a desperation pass at the end of a game with the hope that it will lead to a miracle touchdown that wins the game. In business, such behavior is observed in struggling firms that pursue high-risk strategies in an attempt to avoid almost certain failure. Nevertheless, the Budweiser ad is unusual for two reasons. First, the ad criticized craft beer at the same time parent company AB InBev was making a major effort to enter the craft beer sector through a series of mergers.³¹ Second, negative advertising goes against an industry tradition. Stung by prohibition, macrobrewers in the USA have eschewed denigrating anyone else’s beer.³² In any case, it is unclear

²⁹One can view the Budweiser ad at <http://superbowlcommercials.tv/35218.html> and the craft ad at <http://hopstories.com/videos/craft-beer-super-bowl>. As of November 27, 2015, the Budweiser ad had over 3 million viewers on YouTube and the craft beer ad had over 207 thousand viewers on YouTube. The production of craft beer would not always stop Diogenes in his search for truth. The marketing of Samuel Adams beer in a facility located in Pittsburgh that produced the Iron City brand hardly squares with the New England imagery of the brand. St. Louis craft brewer Schlafly markets itself as the “largest American brewer in Saint Louis” (after the acquisition of Anheuser-Busch by InBev). But its canned product is contract brewed in Wisconsin. The new Sierra Nevada brewing facility near Asheville, North Carolina (capacity circa 350,000 barrels), is so capital intensive that its production function is hardly the “handcrafted ale” as described on the label.

³⁰For example, the market share of Bud and Bud Light fell from 32.5 to 24.7% from 2000 to 2014 (*Beer Industry Update* 2002 and 2015).

³¹See Leonard (2015) for a discussion of the problems this ad created within AB InBev in the USA.

³²For example, at the Craft Brewers Conference on April 25, 1995, Henry King, president of the macrobrewers’ US Brewers Association, stated that “You can say you have the best beer in the world—I am sure all of you have great beer—but it hurts our industry when in speeches, in writing, or in any way we denigrate anyone’s beer” (as reported by Hindy 2014, p. 30).

whether these ads had any economic impact—in spite of their causing a great deal of Internet buzz.

A current issue of strategic importance to craft brewers is AB InBev's offer (made in November 2015) to acquire SABMiller, an international brewing conglomerate that owns MillerCoors. This combination of assets, expected to be completed in the latter half of 2016, will result in a global beer enterprise responsible for about 30% of the world beer market. This mega-merger, on the face of it, would have eliminated head-to-head competition between the Budweiser and MillerCoors brands, which comprise about 70% of the US beer market. To satisfy the US antitrust authorities, AB InBev has proposed spinning off SABMiller's interest in MillerCoors to Molson. Such a reorganization of acquired assets would be similar to what transpired in 2013 when AB InBev sought to acquire Mexico's Grupo Modelo and the antitrust authorities in the USA permitted the transaction contingent upon US sales of the Corona and Victoria brands being sold to Constellation Brands.³³ The acquisition of SABMiller by AB InBev remains of concern to some craft brewers, as illustrated by the response of the Brewers Association, the craft brewers' trade association in the USA. Bob Pease (2015), chief executive officer of the Brewers Association, contends that the AB InBev-SABMiller merger could reduce competition and foreclose distribution outlets to many small craft brewers.³⁴ Even if the Antitrust Division required the combined company to divest all MillerCoors operations in the USA, Pease argued that the increased global footprint of the combined company would give it greater influence over beer industry inputs, which could adversely affect small brewers and consumers.

³³To satisfy international antitrust authorities, AB InBev has proposed the sale of SABMiller's interest in CR Snow (the top selling beer in China) to the government-owned China Resources Beer Holdings Company. AB InBev also would divest three major sellers in its brand portfolio (Peroni, Grolsch, and Meantime) to Japanese brewer Asahi. This reorganization reflects AB InBev's shift from the stagnant US and European beer markets to the growing South African and South American beer markets (where SAB Miller is firmly established). One reason for the stagnant sales of AB InBev and MillerCoors brands in the USA has been the growth of the craft segment, which is not as prominent in South Africa and South America.

³⁴Similar concerns are raised by Moss (2015) of the American Antitrust Institute.

Most beer wholesaling in the USA is done by distributors who concentrate either on brands in the AB InBev portfolio or in the MillerCoors portfolio. Of those wholesalers authorized to distribute either AB InBev or MillerCoors products, most also distribute craft beer. Recently, AB InBev announced a plan that would incentivize some of its distributors to focus on the sale of AB InBev brands (primarily Budweiser products). The program offers financial reimbursements to those distributors whose sales are at least 98% AB InBev products.³⁵

Craft brewers have expressed opposition to this plan, fearing it will crowd their products off the delivery trucks of AB InBev distributors and make it more difficult for craft beer entrants to gain distribution by way of the AB InBev wholesaler network. For this reason, some craft brewers want assurance that their distribution channels will be protected from AB InBev's new incentive practices and also have access going forward to the distributors whose primary focus will be on the newly constituted Molson-Miller-Coors.

AB InBev, on the other hand, is concerned about declining sales of its Budweiser brand and wants its distributors to focus their marketing efforts on its products. AB InBev also is endeavoring to solve a free rider problem: To the extent the brand portfolio of Budweiser products covers the primary costs of the distributor, the craft beers essentially get on the delivery truck at marginal cost.

2.4 The European Connection and Back

As mentioned earlier, the history of the craft beer segment in the USA begins in 1965 with Fritz Maytag and Anchor Brewing Company, followed by the establishment of the New Albion Brewing Company in 1977. The founder of New Albion, Jack McAuliffe, had been inspired by the ales and stouts he enjoyed in Scotland while serving in the US Navy (Johnson 1993).

³⁵See Wall Street Journal (2015) at <http://www.wsj.com/articles/craft-brewers-take-issue-with-ab-inbev-distribution-plan-1449227668>.

Whether the leaders of the craft beer movement were influenced directly or indirectly, the craft beer segment begins in Europe—because much of the beer being produced by the US craft segment has European origins. William Bostwick's *The Brewer's Tale: A History of the World According to Beer* (2014) recounts the influence of European beers now being produced in the USA. For example, Sam Calagione, the founder of Dogfish Head brewery in Delaware, has travelled the world to track down brewing recipes, including Egypt (Bostwick 2014). Dogfish Head's flagship product is "60 min IPA" (India Pale Ale), a malt beverage developed in the Middlesex-Essex area of England (and gained favor as an export to India).

Craft brewers as geographically diverse as Brian Hunt (Moonlight Brewing Company in California) and Will Meyers (Cambridge Brewing Company in Massachusetts) also take their brewing cues from European brewing traditions, particularly in their use of herbs and other plants to supplement the traditional ingredients of malt and hops (Bostwick 2014). These brewers, and others, learned their "craft" from books such as Stephen Buhner's *Sacred and Herbal Healing Beers* and Odd Nordland's *Brewing and Beer Traditions in Norway*. Hunt is so devoted to learning from European brewing traditions that he scours old texts about brewing written in German, even though he must read them with a dictionary (Bostwick 2014)!

Oregon's Rogue Brewing also illustrates the debt that US craft brewers have to Europe. Rogue introduced German-style doppelbock ale—different from Scottish and English ale—to the USA. We are unaware of any brewer who ever brewed a doppelbock ale in the USA. Maine's Allagash Brewery now brews Lambic beer (which ferments spontaneously). The roots of Lambic trace back to the Pajottenland region of Belgium (Bostwick 2014).

Belgian beers have become mainstays of the craft beer industry in the USA. For example, New Belgium, which as the name suggests brews Belgian style beer and ale, is the third-largest US craft brewer. While the Belgian influence upon the craft segment in the USA has been huge, in Belgium itself, once home to over 3000 breweries, the US craft beer movement has had an influence, especially with new entrants brewing beer with more hop content and imitating the recipes of American craft brewers (Alworth 2015).

To the extent that influence is a two-way street, it also is the case that other European brewers are now influenced by the craft brewers in the USA. Alworth (2015) argues that the craft beer revolution began almost simultaneously in Britain and the USA. While conceding that the craft beer segment is small compared to what he calls “industrial-scale brewing,” he argues that craft beer is having a renaissance throughout the Western world. Consistent with a two-way street hypothesis, Alworth writes:

Belgians are making hoppy beers, and American are making Belgian ales. The French are making cask ale, and the British are discovering craft lager. These trends get fed back into the cultural mill, shifting and mutating until they’ve created something yet again different and new. (Alworth 2015)

Some craft brewers in England have revitalized estate brewing. For example, Thornbridge Hall in Derbyshire has reconstructed the estate’s brew house and began brewing an IPA with hops from the USA—which met with such success that a new brewery facility was constructed nearby in order to meet demand. The new brewery looks like many of the hundreds of craft brewers recently constructed in the USA (Alworth 2015). Griffin Brewery in West London is another example of an ancient brewing firm that has repositioned itself as a modern craft brewer—installing state-of-the-art capital equipment enabling the company to brew beer with a variety of recipes and packages (Alworth 2015). Bostwick identifies Camden Town as a brewer that epitomizes “the UK’s new-school brewing scene” (Bostwick 2014). Asked what inspires this firm’s production decisions, US brands such as Lagunitas and Bear Republic are identified as role models. Camden Town also has new brewing and packaging machinery, similar to the capital equipment found in hundreds of US craft breweries.

Facilitating the entry and expansion of craft brewing on both sides of the pond is the maturation of the market for capital equipment used in the brewing process. When craft brewing was in its infancy in the USA, one barrier faced by aspiring entrants was securing brewing and packaging equipment suitable for small-scale operations. A modern packaging

machine has a line speed of over 1000 bottles or cans per minute (CPM). That's too much for any craft brewer.

The early craft brewers regularly used capital equipment designed for other industries (such as the dairy industry) and adapted it to brewing and packaging; they often exchanged ideas about how to gather the necessary capital equipment to produce and bottle malt beverages in small lot sizes. All this has changed. Today, a craft brewer can purchase canning equipment that runs from 50 to 250 CPM.³⁶ There are vendors in both the USA and Europe that offer capital equipment scaled for craft brewing. An aspiring new entrant today can order a turn-key plant to produce craft beer.

The annual "Business Edition" of *The New Brewer* illustrates the market for capital equipment and other inputs now readily available to aspiring and incumbent craft brewers. It is no longer important for a new entrant to have skills as a welder, plumber, and electrician to be a craft brewer or, absent these skills, find a large brewer with excess capacity. The trade show sponsored by the Brewers Association now has over 400 exhibitors; in 2014, there were over 9000 attendees (15% were international) (Beer Marketer's Insights, April 15, 2014).

In summary, the adoption of European brewing practices, personal experience with new brews through travel, and expertise gained from books by European authors are conduits by which Europe influenced American craft brewers. Today, European brewers are taking cues from craft brewers in the USA: Brewhouses are modeled after US craft breweries and brews fashioned after US brands. On the input side, hops produced in the USA are used to produce British craft beer, and capital equipment tailored to craft brewing aids both US and European brewers. Economists are fond of pointing to the gains from trade. In the case of craft beer, gains are being exploited and enjoyed even in the absence of the actual movement of malt beverage products across national boundaries.

³⁶JV Northwest merits citation as a supplier that developed scaled-down capital equipment for the craft segment but no firm has a monopoly over any input, be it land, labor, or capital.

2.5 Conclusion

While macrobrewers continue to produce the majority of beer sold in the USA, the craft segment is the growth sector in the industry, in terms of the number of firms having entered (now over 4000) and the share of the market (now over 10%). In the past, consumers who became acquainted with beer that differed from the light lagers of macrobrewers did so by drinking beer from Germany, the Netherlands, Belgium, or Britain. Except in San Francisco, the only alternative in the 1970s was an imported brand. Even by 1985, craft beer was available in only 10 states and had a share of the market that was less than 0.05%, a year when imports commanded over 4% of the market.

Now, this demand is fostered and met by domestic craft brewers. The popularity of craft beer in the USA has caused imports of beer from Europe to stall.

The entrepreneurial taproot of the craft beer segment in the USA is Fritz Maytag. He resurrected the Anchor Brewing Company and became a role model for many craft brewers who followed him. But the taproot of the craft beer segment itself lies in the variety of beers that have been produced in Europe (some for centuries). The craft beer segment has an enormous debt to Europe. But in a historical irony, as the craft beer segment matures in the USA, brewers in Europe have taken notice and responded by resurrecting and modernizing breweries that had been in existence for years. In addition, there has been the entry of new brewing establishments, whose owners and brewmasters reflect the spirit of Fritz Maytag.

Meanwhile, in the USA, craft brewers typically pursued production and marketing strategies quite distinct from the macrobrewers, focusing on niche markets as opposed to mass markets. These strategies contributed to their success. Today, the lines between crafts and macros are becoming blurred. As late as 2009, the Brewers Association defined a craft brewer as one with an annual output of less than 2 million barrels. In 2010, this definitional cap was raised to 6 million barrels. Some craft brewers have expanded into facilities so large and capital intensive that their product hardly can be described as “hand crafted.” At the same

time, US macrobrewers now have their own subsidiaries that develop and produce brands that imitate craft beer, and they have become active acquirers of craft beer firms.

The US craft beer segment cannot be viewed in isolation. The success of craft beer relies on strategic interplay with the macro sector as well as the influence of the style and taste profiles of beer emanating from Europe. The future will likely hold continuing interactions among US craft brewers and European brewers to the betterment of craft beer.

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