Craft Brewing In Hampton Roads



CRAFT BREWING IN HAMPTON ROADS

Beer is proof that God loves us and wants us to be happy.

– Often incorrectly attributed to Benjamin Franklin

he beer industry has experienced a renaissance with the rise of craft breweries and beer. The craft beer scene, typically characterized by small independent local breweries producing unique flavors, has swept across the country. Graph 1 shows craft beer production in the United States grew by double-digit annual rates in the first half of the decade. However, craft beer production slowed to more pedestrian levels of growth in 2016 and 2017. Nonetheless, craft beer has steadily increased its share of the total beer market. Bart Watson, chief economist for the Brewers Association, the craft brewers' trade group, attributes this growth to changing consumer tastes for fuller flavor, greater product variety and increasing support for local businesses.¹

As the craft beer movement was gaining steam, Virginia was in danger of missing out on the party. Breweries in the Commonwealth were not able to sell their beer on-premise without a restaurant license, a privilege allowed to the state's wineries. On-site sales locations, which go by such names as tasting rooms, tap rooms, beer halls, beer gardens, etc., had become a staple of the craft beer movement. Craft beer enthusiasts outside the Commonwealth were flocking to breweries where they could sip on a draft or flight (several small glasses of different beers) with the stainless-steel equipment that fermented their beverage in the background. Virginia breweries were missing out on this class of consumers who value experience (in this case the brewery atmosphere) along with the products they purchase.² They were instead left competing for distribution to retail sites with older, more established brands.

This changed in 2012 when the General Assembly passed SB 604 (signed by then Gov. Bob McDonnell, in a brewery no less), which cleared the way for on-site beer sales. This legislation made it more profitable for large and small breweries alike to operate within the state. By serving beer on-site, brewers are able to circumvent the three-tier marketing system (producer-distributor-retailer) that had lingered since the repeal of Prohibition. Now they can market their

1 https://www.theatlantic.com/business/archive/2018/01/craft-beer-industry/550850 2 Research published in 2014 shows that beer tourists are motivated to visit a brewery by four main factors:

unique concoctions directly to drinkers, and subsequently help their bottom line. Breweries earn approximately five times more on a beer sold in a tasting room than the same beer distributed to a grocery store or restaurant. Thus, if thirsty customers continue to visit tasting rooms, even relatively small craft breweries can not only survive, but also thrive.

Furthermore, SB 604 lowered the risk for entrepreneurs to start craft breweries in the Commonwealth, and allowed them to experiment with different ingredients, locations and brewery atmospheres. McDonnell remarked while signing the bill that it would "make it easier for our breweries to serve as destinations for potential customers." And Mike Killelea, chairman of the Virginia Craft Brewers Guild, noted that it would "help existing breweries flourish and create opportunities for new craft breweries to enter the market." This is undoubtedly also good for consumers.

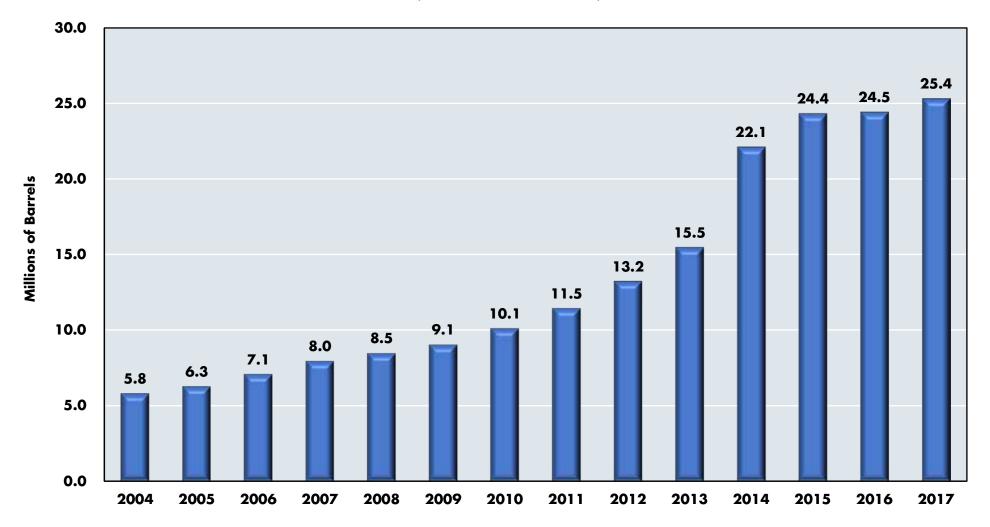
Before the passage of SB 604, there were only four craft breweries in Hampton Roads. By May 1, 2018, the number of craft breweries had increased to 29. Because of the nature of the industry, the number and type of breweries changes quickly, as evidenced by the announcements of new breweries in the summer of 2018.

² Research published in 2014 shows that beer tourists are motivated to visit a brewery by four main factors craft brewery experience, enjoyment, socialization and beer consumption, Kraftchick, J.F., Byrd, E.T., Canziani, B. and Gladwell, N.J. (2014), "Understanding beer tourist motivation," *Tourism Management Perspectives*, 12, 41-47.

³ http://beerpulse.com/2012/05/virginia-governor-signs-two-laws-supporting-in-state-craft-breweries 4 https://www.brewersassociation.org/current-issues/va-governor-signs-bill-enhancing-small-brewery-sales.

GRAPH 1

TOTAL CRAFT BEER PRODUCTION IN THE UNITED STATES, 2004-2017
(IN MILLIONS OF BARRELS)



Local craft breweries are both satisfying drinkers' palates and helping revitalize rundown sections of cities, spurring the creation of supporting businesses and providing a local outlet for consumer spending that otherwise would have left the region. In many places, local craft breweries are not only a destination for a new kind of consumer, the craft beer tourist, but also a new neighborhood meeting place akin to the town square of long ago. These breweries can also serve as a source of competition with other local venues for scarce entertainment spending, and as such contribute to vibrant economic growth.

In this chapter, we take a closer look at the craft brewery industry and the role it plays in Hampton Roads.

What Is A Craft Brewery?

The term "craft beer" deserves some unpacking. Some prefer to define craft beer not by what it is, but by what it is not. In this light, craft beer is not produced by one of the "big beer" conglomerates like Anheuser-Busch InBev (AB InBev) or MillerCoors, which we'll refer to as macro brewers. While useful, this distinction has become thornier. The macro brewing companies have begun to purchase smaller regional breweries, such as AB InBev's purchase of Devils Backbone Brewing Co. in Virginia's Shenandoah Valley and Wicked Weed in Asheville, North Carolina, among others. In the industry, these have come to be known as "phantom brands" since most of the beer-drinking public is not aware that Devils Backbone and Wicked Weed are owned by the macro brewery AB InBev.

The Brewers Association provides further guidance on defining craft brewers. In 2017, the trade group even launched a certification and labeling program to help consumers differentiate between phantom and macro brands, with breweries falling under their definition of craft beer. They note, "An American craft brewer is small, independent and traditional." They go on to flesh out these characteristics. "Small" indicates the brewery produces 6 million barrels (186 million gallons) or fewer each year. This eliminates the macro brewers, but still includes many large producers like the Boston Beer Co. (known for its flagship brand Samuel Adams), which have more in common with macro brewers than their smaller craft counterparts. "Independent" denotes that

the craft brewer has the majority of the ownership stake or control in the company. "Traditional" purports that a brewery uses traditional or innovative brewing ingredients. The notion of traditional ingredients harkens back to the Reinheitsgebot, the German beer purity law of 1516. The Reinheitsgebot only permitted beer to be produced from water, hops and barley.⁵ In practical terms, the use of traditional ingredients contrasts craft beer from other flavored malt beverages, like hard lemonade. Outside of using traditional ingredients, craft beer is often characterized by unique twists and distinctive flavors created by including nontraditional ingredients such as fruits, chocolate and much more. The Brewers Association goes on to note that most craft breweries tend to be involved in their local communities through philanthropy, volunteerism and sponsorship of local events.

What signifies a brewery as "craft" should not be confused with what some refer to as craft beer industry market segments. Again, the Brewers Association provides guidance on the differences among a microbrewery, brewpub, contract brewing company and regional craft brewer. Microbreweries produce fewer than 15,000 barrels a year and sell 75 percent of their beer off-site. Brewpubs, on the other hand, are restaurant-breweries that sell a higher percentage of beer on-site and emphasize the quality of food offerings. Contract breweries outsource the production of their beer to another brewery. Finally, regional breweries, as previously defined, are independent breweries with most of their production using traditional or innovative ingredients and have annual production between 15,000 and 6 million barrels.

Despite the range of distinctions and definitions, when thinking about the Hampton Roads craft brewery scene, we focus on breweries that fit the simplest of these definitions. These breweries are small, independent and produce beer with distinctive flavors. All the breweries in Hampton Roads fall under this broad definition.

⁵ Yeast was left off the original Reinheitsgebot, despite its important role in the fermentation process. It was later added to modern versions of the regulation.



The Craft Beer Producers

A BRIEF HISTORY OF CRAFT BREWING

Many credit Fritz Maytag, the great-grandson of Maytag Corp. founder Frederick Maytag, as the father of modern American craft brewing. In 1965, Maytag purchased San Francisco's floundering Anchor Brewing Co. Founded in 1896, it was on the precipice of going out of business due to declining sales and competition from lighter beers mass-produced by macro breweries. Maytag was able to revitalize Anchor Brewing and at the same time inspire a generation of craft brewers. He understood that his small brewery would not be able to compete with the low prices of macro brewers. Instead, he would need to compete with expensive imported brands on variety and quality. By 1975, Anchor brewed the first American India pale ale, American barley wine and the first American wheat beer since Prohibition. The brewery also revived many beer enthusiasts' favorite part of the holiday season, custom spiced beer. Maytag's ability to produce innovative products would become a staple of the craft beer movement.

Producing an innovative product was crucial for the survival of Anchor Brewing. However, Maytag likely did more for the future of craft beer by inspiring both the home brew movement and several early craft-brewing pioneers. First, he indirectly helped give rise to the home brew movement, where, as the name suggests, individuals make small batches of beer in their homes to share with friends and family. One of the original home brew pioneers, Fred Eckhardt, began home brewing after a visit to Maytag's brewery. Eckhardt later penned the book "A Treatise on Lager" in 1970, which was instrumental in launching the home brew movement. By the early 1980s, hundreds of people were contacting Maytag for advice on how to start a brewery. His most notable protégé was Ken Grossman, co-founder of Sierra Nevada Brewing Co., who incidentally started home brewing after reading Eckhardt's book.

Why the history lesson? Because the traits that spurred the nascent craft beer industry in the 1960s and 1970s also propel it today. Craft brewers continue to create products with unique tastes using nontraditional ingredients. Beer has come a long way from the traditional Reinheitsgebot ingredients of water, hops and barley. Now craft brewers include ingredients that range from apricots to zucchini, and a wide variety in between. Craft brewers are even experimenting with fermenting beer in bourbon and wine barrels to create truly unique flavors. Furthermore, one would be hard-pressed to find a recent craft brewery founder who didn't start out home brewing. The collaborative culture still exists today. Breweries often undertake joint brewing projects and established breweries serve as a training ground for future entrepreneurs.

BEER PRODUCTION BY THE NUMBERS

Now on to some numbers. As shown in Graph 2, the market share of craft beer, compared to total beer, more than doubled over a six-year period – from 5.7 percent in 2011 to 12.7 percent in 2017. In comparison, craft beer made up less than 3 percent of the total beer market merely a decade ago. Over the last decade, the beer industry has gone through a significant transformation. Table 1 shows some specifics by comparing the number of breweries and the amount of beer produced (both craft and non-craft beer) for different size categories between 2007 and 2017. First, in 2017 there were more than 3.5 times the number of breweries compared to 2007. This growth took place at a time when the total amount of domestic beer production declined by over 6 percent.

Most size categories saw an increase in the number of breweries. The largest (6,000,001 barrels or more) declined both in quantity of breweries and amount of production. While this inevitably represents some consolidation by the largest players in the business, nonetheless this is also a harbinger for the decline in non-craft beer and the rise of smaller, boutique breweries. The smaller-scale breweries (fewer than 30,000 barrels) grew from 1,332 in 2007 to 4,927 in 2017, representing a 270 percent increase over the decade. Furthermore, production for the smaller brewers increased by 240 percent (more than 5,000,000 barrels), while the larger facilities that produce 100,000 or more barrels actually saw a 10 percent decline in volume over the last decade.

⁶ More information on the history of craft brewing can be found at Elzinga, K.G., Tremblay, C.H. and Tremblay, V.J. (2015), "Craft beer in the United States: History, numbers, and geography," Journal of Wine Economics, 10(3), 242-274.

⁷ https://untappd.com/b/blackwater-draw-brewing-company-zucchini-bread-beer/475086.

GRAPH 2

SHARE OF CRAFT BEER PRODUCTION IN TOTAL BEER PRODUCTION: UNITED STATES, 2001-2017

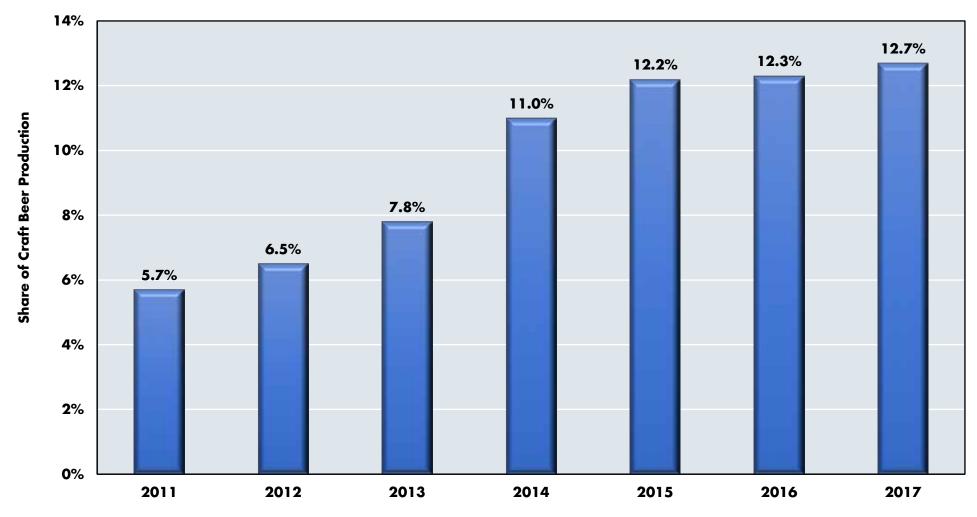


TABLE 1 **NUMBER OF BREWERIES BY PRODUCTION SIZE, 2007-2017**

	Number o	f Breweries	Total Barre	s Produced	
Size	2007	2017	2007	2017	
6,000,001 Barrels and Over	17	15	167,562,085.40	135,615,117.47	
1,000,001 to 6,000,000 Barrels	3	9	13,003,841.85	22,156,697.28	
500,001 to 1,000,000 Barrels	10	10	6,641,984.43	6,253,029.02	
100,001 to 500,000 Barrels	24	40	4,972,430.67	8,792,844.25	
60,001 to 100,000 Barrels	20	41	1,513,844.02	3,175,932.85	
30,001 to 60,000 Barrels	34	53	1,441,864.66	2,230,144.53	
15,001 to 30,000 Barrels	26	99	538,169.53	2,062,332.14	
7,501 to 15,000 Barrels	41	152	452,233.35	1,565,335.71	
1,001 to 7,500 Barrels	356	1,030	819,158.91	2,656,419.36	
1 to 1,000 Barrels	909	3,646	355,171.47	1,073,977.86	
Total	1440	5095	197,300,784.29	185,581,830.47	

Source: Department of the Treasury Alcohol and Tobacco Tax and Trade Bureau (TTB)
* Created 1,000,001 to 6,000,000 Barrels category for 2016 data
** Removed under 1 Barrel producers

¹⁾ Number of Breweries - Count of brewery premises reporting production operations and paying taxes during the calendar year, from TTB data records.

2) Size - Based on Annual Production - The listed strata of breweries is based on the total amount of beer, in barrels, produced during the calendar year by each brewer.

3) Barrels Produced - Total barrels of beer produced by the breweries comprising the named strata of data. Totals from each brewer are drawn from lines 2 and 3, column (g), of TTB Forms 5130.9 - Brewer's Report of Operations, and lines 1 and 2 of TTB Form 5130.26 - Brewpub Report of Operations submitted by brewers for operations during the calendar year.

To provide context on the size of the facilities displayed, no brewery in Hampton Roads comes close to producing the volume of the top few categories, and most produce fewer than 15,000 barrels. One thing is for certain: The beer industry is becoming less concentrated among a few large producers.

There also has been an evolution in the craft beer market segments. Graph 3 compares market segments using data from the Brewers Association. Regional and microbreweries were a significant driving force of growth in the craft beer industry. Regional breweries, the independent breweries with annual production between 15,000 and 6 million barrels, accounted for 64 percent of production in 2004, increasing to 79 percent by 2014 but declining to 70 percent in 2017. Microbreweries accounted for 12 percent of the market share in 2004 and have risen steadily to account for more than 22 percent in 2017. The production growth from regional breweries has stalled in recent years, while smaller microbrewery output has continued to rise.

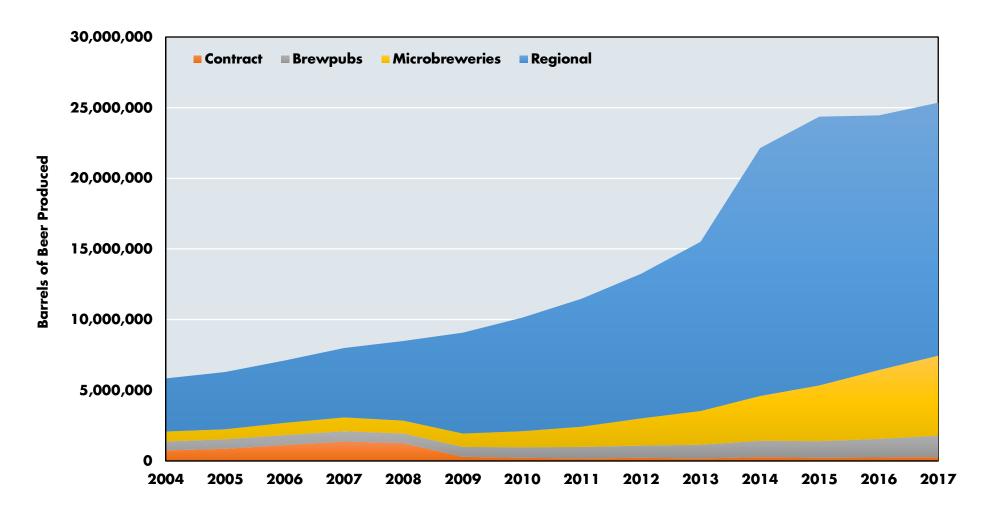
As we will see later in this chapter, the brewery industry in Hampton Roads displays strong parallels to the aggregate national trends.

Our craft brewery scene is made up primarily of brewpubs and microbreweries, which have continued to thrive in recent years. Green Flash would have been the lone brewery representing the regional brewery segment. In 2018, in the face of increasing competition, Green Flash shuttered its Virginia Beach brewery and stopped distribution in many states. After defaulting on a commercial loan, Green Flash was sold to a group of private investors and now has new management. New Realm Brewing, based in Atlanta, purchased Green Flash's Virginia Beach facility and recently reopened the tasting room and production line⁸.



⁸ https://www.brewbound.com/news/green-flash-brewing-hires-top-anheuser-busch-executive-new-ceo

GRAPH 3
HISTORICAL CRAFT BREWERY PRODUCTION BY CATEGORY



BEER MARKETS

Beer production was dispersed among many breweries prior to Prohibition. The Brewers Association estimates there were almost 2,000 active permitted U.S. breweries at the turn of the 20th century. This is similar to the number of breweries in the country 100 years later. However, between these periods a few large producers dominated the industry, such as the macro brewers mentioned earlier. Understanding the post-Prohibition market structure, which economists call an oligopoly (literally meaning a small number of sellers), yields insights on the evolution of the industry and how craft beer and macro beer might compete in the future.

Following the repeal of Prohibition, there was a brief spike in the number of breweries, which quickly diminished to a few big producers (the macro beer oligopolists). The oligopoly market structure explains in part why the large producers focused on producing essentially the same beer, the American pale lager. These brewers initially competed on price (or the flip side of the coin on lower costs of production), but they also wanted a consistent taste that was suitable to the masses. Brewers were looking to reach a broad range of consumers and provide a dependable product for drinkers throughout the country. Their goal was similar to what McDonald's was doing with the hamburger, providing a low-cost product amenable to the average consumer. Furthermore, by focusing on a core product, they were able to leverage their size and save costs on production, advertising and distribution. This strategy proved quite profitable.

While the American pale lager grew in popularity after Prohibition, it did not satisfy the demands of beer drinkers who desired something more from their beverage. A growing number of consumers were demanding locally produced craft beer with greater variety in terms of styles and flavors, and most importantly they were willing to pay more for it. This change in consumer demand for beer mimics the "buy local" movement in other food- and drink-related sectors, which has picked up steam in recent years and helped spur the craft beer movement.

Beer production is an inherently capital-intensive process, meaning breweries rely on machinery such as fermentation tanks and automated bottling machines

instead of labor to produce the final product. The large macro brewers leveraged this to make large batches of a single type of beer at a low cost. However, as the number of craft breweries grew, the cost of craft brewing equipment and production diminished. This allowed craft brewers to make a greater variety of beer in smaller batches, giving craft beer enthusiasts new beer to sample on a regular basis.

In many ways, craft brewers are competing on different dimensions than the macro brewers before them. The competition is not rooted in price, but instead on things like taste, variety and tap room atmosphere. This type of product differentiation is evident in Hampton Roads. For example, Young Veterans Brewing in Virginia Beach is known for its flagship product, Pineapple Grenade, which differs from the brews of its local competitors. In the same light, Oozlefinch Craft Brewery boasts a unique location at historic Fort Monroe in Hampton.

The macro brewers have not had much success jumping directly into the craft beer market. For example, Budweiser American Ale was a notable attempt, but it was discontinued in 2015 due to floundering sales. It appears that instead of competing in the craft brewery market directly with their own brands, macro breweries have moved to purchasing successful craft breweries, such as Devils Backbone. Beer industry insiders believe that as a part of this strategy, the macro brewers will use their size to reduce costs for their purchased craft brands. This could lead them again to compete based on price; however, this time it would be with smaller craft beer producers.

THE CRAFT BEER DRINKERS

Let's now turn to the drinkers. There is a stereotype of the people who drink craft beer and frequent craft breweries. They are caricatured as young Caucasian men with white-collar jobs, likely sport beards and perhaps have a few discreet tattoos, and are outdoorsy on the weekends. It would be difficult to confirm these stereotypes, but it is useful to determine if this portrait is generally accurate and if there are any places of potential growth for the industry.

Table 2 shows the demographic breakdown for the age 21-plus population as well as the percentage of each demographic group of weekly beer (macro or

craft) drinkers and of those that drink beer weekly and choose craft beer. In general, the data bear out the stereotype. White non-Hispanics are the largest racial group that consume craft beer, and men are more likely than women to both drink beer in general and choose craft beer weekly. Millennials are the largest generation of craft beer drinkers, and people who earn over \$75,000 a year are the most likely income group to drink craft beer.

TABLE 2					
WHO ARE THE CRAFT BEER DRINKERS:					
GENDER, GENERATION, INCOME AND RACE					

	% Population	Weekly Beer	Weekly Craft
	21+	Drinkers	Beer Drinkers
Male	49%	74%	75 %
Female	51%	26%	25%
Millennials	29%	41%	57%
Gen Xers	25%	27%	24%
Boomers	35%	27%	17%
Matures	10%	5%	2%
Under \$35K	29%	20%	13%
\$35K - \$50K	11%	9 %	6 %
\$50K - \$75K	18%	17%	15%
\$75K +	42%	54%	66%
White (Non- Hispanic)	65%	62%	60%
African American (Non-Hispanic)	12%	11%	10%
Hispanic	15%	20%	21%
Asian/Other	6 %	6 %	9 %
Multiracial	14%	19%	24%

Source: https://www.brewers association.org/communicating-craft/understanding-todays-craft-beer-lovers-millennials-women-hispanics/

There is reason for optimism for craft brewers. First, the current demographics of craft beer drinkers bode well for the industry, as the younger millennials become of drinking age and older millennials advance up the socioeconomic ladder. Second, Hispanics are a growing segment of the population and some in the industry believe they could prove to be the next frontier for growth in the industry. Finally, craft beer has grown without tapping into over half of the population – women. The variety of flavors is one of the strengths of craft beer. Breweries are actively creating beer options to cater to women, and several breweries, like High Heel Brewing, started with women in mind.

Craft beer is inextricably tied to the broader "buy local" movement. Buying local includes things like local food from farmers markets and products from local artisans. A recent National Public Radio segment noted how craft beer enthusiasts increasingly desire local products, even by neighborhood within a city. ¹⁰ Table 3 shows that for consumers who drink at least a few times per year, this link is tighter for craft beer than for other alcoholic beverages. Sixty-seven percent of consumers say that locally produced craft beer is "very" or "somewhat" important in their purchasing decision. Further, the desire to buy locally produced craft beer is even more important to younger consumers, where 71 percent say that craft beer produced locally is an important determinant of their shopping. This is a good sign for smaller, local breweries in their competition against national and international brands.

Selling beer on premise (for example, in a tasting room) is the most important sales avenue for many breweries. Thus, it is important to understand what brings customers through the doors. According to a Nielsen survey and analysis by the Brewers Association, the most common reason a craft beer drinker visits a tasting room is that they "offer beers that are not available elsewhere." Thus, variety is a crucial draw. However, the story does not end there. Table 4 shows the average number of visits for each reason consumers chose to visit a tasting room. While variety might get the occasional visitor, it's the quality and atmosphere (including a family friendly atmosphere) that get people to keep coming back. This has helped differentiate breweries from local bars and made some breweries the local meeting place for millennials and families.

⁹ https://www.forbes.com/sites/taranurin/2017/04/07/craft-beer-needs-more-diversity-and-growth-one-community-can-solve-both-problems.

¹⁰ http://www.kpbs.org/news/2018/apr/12/what-rise-and-fall-san-diegos-green-flash-mean-cra.

TABLE 3 HOW IMPORTANT IS BEING LOCALLY MADE IN YOUR **PURCHASE DECISION FOR...**

	Craft Beer	Beer	Wine	Spirits
Total: Age 21 +	67%	45%	34%	23%
Age 21-34	71%	53%	34%	25%

Percentages are respondents that answered "very true" and "somewhat important."

Sources: Nielsen Quick Query Omnibus Survey, 12-17, 2015. (Base: LDA consumers who drink at least several times per year) https://www.brewersassociation.org/insights/local-beer/ http://msue.anr.msu.edu/uploads/235/92786/Great_Lakes_-_Beer_Barley_and_Hops.pdf

TABLE 4

WHY DO CRAFT DRINKERS CHOOSE TO VISIT A TASTING ROOM?

Average brewery visits (both near home and while traveling) for each reason for visiting a brewery.

Reason for Visit	Average Visits for Those Who Chose Reason
Family Friendly	17.6
Pairings	12.2
Atmosphere	11.3
Fresh Beer	8.1
Staff	7.9
Unique Beers	6.9
Tours	6

Source: Brewers Association

Note: Respondents could select multiple choices.

Craft distilleries are beginning to open around the country, riding the wave of the craft beer boom. According to the American Craft Spirits Association, there were more than 1,300 craft spirit producers in the United States in 2016. As of early 2018, Hampton Roads was home to a handful of craft distilleries. However, consumers don't appear to have the same desire to purchase locally made spirits as they do craft beer. As noted in Table 3, only approximately 25 percent of consumers reported that spirits produced locally are "very" or "somewhat" important in their purchasing decision.



The Virginia And Hampton Roads Craft Beer Scene

HOW HAS VIRGINIA FARED?

The Brewers Association publishes an annual list of the top 50 U.S. craft brewing companies based on sales volume. ¹¹ Beer enthusiasts would recognize many of the brewery names and their flagship products. Based on the 2017 numbers, the largest craft breweries in the country are geographically clustered in the Northeast, West Coast and near the Rocky Mountains and the Great Lakes. Of the nation's top 50 breweries, the closest to the Commonwealth are Dogfish Head (No. 12) in Milton, Delaware, and Flying Dog Brewery (No. 28) out of Frederick, Maryland.

Unfortunately, there is not a brewery well known enough to put Virginia (or Hampton Roads) on the map. Most of the 50 largest craft breweries have a long history in the industry. Only Richmond's Legend Brewing Co., the Commonwealth's oldest craft brewery still in operation, competes with the larger players on age. Despite its lack of a big player in the craft game, Virginia still has potential at the local level. The large players focus on widespread distribution of their product for growth. This strategy proved dicey for some, such as Green Flash's recent bankruptcy and cutbacks at Colorado's New Belgium Brewing Co. This suggests increased competition for breweries undertaking this strategy. In contrast, once they were able to open tasting rooms, small breweries in Virginia have been able to focus on serving their local community.

First, let's look at how Virginia compares to the rest of the country in craft beer production. Graph 4 shows the total number of craft beer barrels produced in 2016 for each state, while Graph 5 provides a similar metric (in gallons instead of barrels) for the drinking-age population. Unsurprisingly, the overall level of production is concentrated in a few states with large anchor breweries.

For instance, Yuengling fuels Pennsylvania's large production amount. Virginia ranks 21st overall (Graph 4), yet significantly below neighboring North Carolina (at No. 5). This could be due to North Carolina's strong brewing presence in the western part of the state near the Blue Ridge Mountains, which attracts a significant number of tourists. For example, 38 percent of the nation's brewing visitors are reportedly tourists in North Carolina. In comparison, Virginia's Shenandoah Valley tends to be thought of as wine country, instead of as a craft brewery destination. The Commonwealth fares lower on the proverbial totem pole, dropping to 33rd overall, when we take the drinkingage population into account.

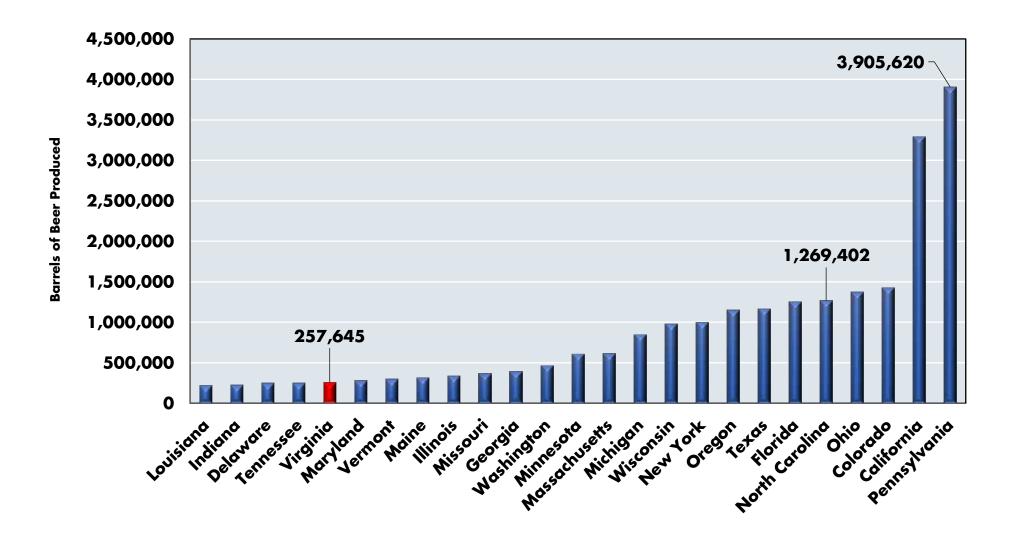
Production is a useful metric, but it can be distorted by large export-oriented brewers or areas with a strong tourism base. On the other hand, the number of breweries may be a better metric for local residents' access to craft beer- and brewery-related amenities. Graph 6 shows that Virginia doesn't lag behind the rest of the country in the number of breweries. It measures the number of breweries per 100,000 residents for the Commonwealth, North Carolina and the United States. Taking population into account allows us to consider the number of breweries in each location on more of an equal playing field. Virginia's brewery trajectory mimics North Carolina and the rest of the U.S. The graph shows what some in the business community refer to as "hockey stick" growth, accelerating right around 2012. The Commonwealth now has approximately 2.5 breweries for every 100,000 people, which is slightly higher than for the nation.

¹¹ https://www.brewersassociation.org/press-releases/brewers-association-releases-2017-top-50-brewing-companies-by-sales-volume.

¹² https://www.citylab.com/life/2017/08/can-craft-breweries-transform-americas-post-industrial-neighborhoods/536943.

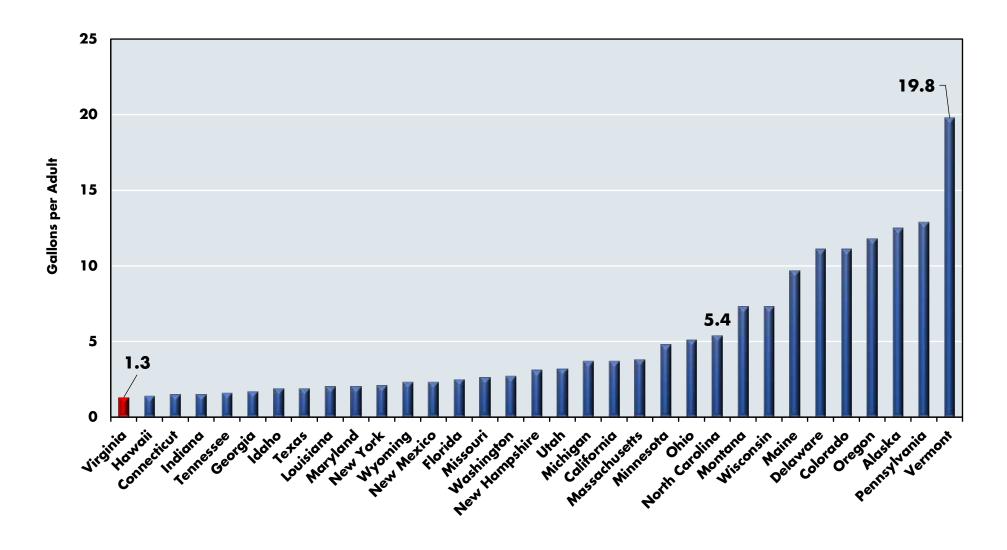
GRAPH 4

CRAFT BEER BARRELS PRODUCED IN 2016 FOR SELECTED STATES



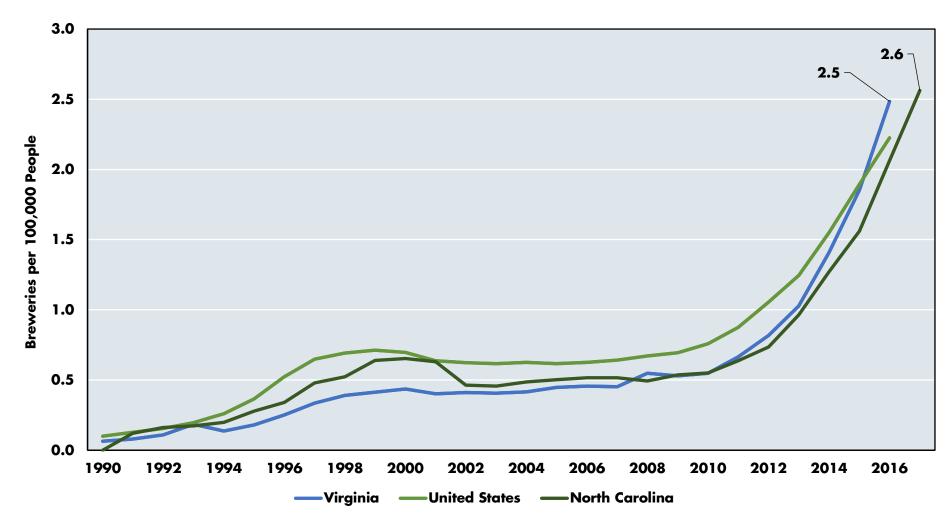
GRAPH 5

CRAFT BEER PRODUCTION IN GALLONS IN SELECTED STATES: ADULTS AGE 21+, 2016



GRAPH 6

BREWERIES PER 100,000 RESIDENTS IN VIRGINIA, NORTH CAROLINA AND THE U.S. (1990-2016)



CRAFT BEER IN HAMPTON ROADS

On many accounts, Hampton Roads appears to have a thriving craft beer scene. Figure 1 provided the locations of some of the breweries in our region as of May 1, 2018, while new craft breweries continue to open in neighborhoods throughout the area. The region also hosts successful craft beer festivals in Norfolk and Virginia Beach throughout the year.

The emergence of the craft-brewing culture in our region might be viewed as a break from the past. Historically, Hampton Roads lagged in beer production and consumption. Demographics played a role, as immigrants to the region did not have as strong of a beer-brewing and consumption tradition when compared to Boston, Chicago or St. Louis. African-Americans and Hispanics also tend to consume alcohol less frequently than non-Hispanic whites, leading to a lower demand for alcohol in general.¹³ Lastly, overall beer consumption has declined in the United States, so one might argue that craft brewing is a larger slice of a shrinking pie.

This leads us to several natural questions. How does Hampton Roads compare to other regions? Is the market saturated or do we have room for further growth? We look at each of these questions in turn.

Unfortunately, there are no consistent publicly available data for craft beer production across regions. Thus, we look at how the number of breweries in Hampton Roads compares to other East Coast areas. Table 5 shows information on brewery establishments by region. The Quarterly Census of Employment and Wages (QCEW) data differ slightly from our count of breweries in Hampton Roads for 2016, due to how it defines establishment and the industry classification it uses. Nonetheless, QCEW provides a consistent measure across regions. In 2016, Hampton Roads did not fare well compared to other East Coast cities. It ranked near the bottom of our selected cities with 0.69 breweries per 100,000 residents. This is despite the large military presence that gives us a disproportionate number of prime craft beer-drinking residents.

Next, we turn to whether the local craft brewery market is saturated or there remains room for the brewery industry to grow. We start by considering how many craft brewery establishments there are in Hampton Roads compared to the U.S. using a concept called a location quotient. An area's location quotient provides an objective measure of concentration for an industry in a region. The location quotient compares the region's share of an industry (for example, craft breweries in Hampton Roads) with the industry share for the nation. Hampton Roads has a 2016 craft brewery establishment location quotient of 0.99. Intuitively, this means that there is the same share of craft breweries in our region as the nation. Hampton Roads is about average in its number of craft brewery options compared to the nation, yet as the table shows, we still lag behind some of our regional competitors. Furthermore, when we take into account local demographics like the age, income and education profile, we estimate that Hampton Roads has the number of breweries one would anticipate when compared with other regions.

It appears that the number of breweries in Hampton Roads is on pace with other regions, based on current conditions. However, national trends in the beer and craft beer industry continue to evolve. As the industry changes, we expect the local craft brewery scene also to adjust.

First, the industry has become more competitive as it has matured. Those within the industry note that five years ago a brewery didn't need a solid business plan or even quality beer to be successful. However, those days appear to be over. While still only a small fraction of the overall industry, unsuccessful breweries are beginning to close. In particular, there were 165 closures in 2017, up 42 percent from 2016.¹⁴

Second, we showed earlier (Graph 1) that the overall level of craft production has begun to level off. This was inevitable, as it's challenging for any industry to continue double-digit growth for long. Craft brewers not only face increased competition from macro brewers as they lose market share, but also from wineries and craft distillers. To continue to expand, craft brewers must continue to win over converts from underserved demographics and other alcoholic beverage groups.

¹³ In the 2016 National Survey on Drug Use and Health, almost 71 percent non-Hispanic whites had consumed alcohol within the last 30 days compared to 9.8 percent of African-Americans and 13.6 percent of Hispanics.

¹⁴ https://www.washingtonpost.com/news/business/wp/2018/04/10/the-craft-beer-industrys-buzz-is-wearing-off.

Third, within the craft brewery industry there has been a transition from growth coming from large producers to smaller-scale boutique breweries (Graph 3). That is, consumers appear to be shifting away from national craft brands like New Belgium or Green Flash and toward craft beer from within their city or neighborhood. This is certainly good news for current and future Hampton Roads breweries, even if it suggests that the smaller, local breweries are eating away at their larger counterparts.



TABLE 5

CRAFT BREWERY ESTABLISHMENTS FOR SELECTED AREAS, 2016

Region	Establishments	Population	Establishments per 100,000 People	Location Quotient for Establishments
Asheville, NC	27	452,319	5.97	6.68
Baltimore, MD	17	2,798,886	0.61	0.8
Charleston, SC	16	<i>7</i> 61,155	2.10	2.78
Charlotte, NC	33	2,474,314	1.33	1.66
Cincinnati, OH	23	2,165,139	1.06	1.47
Columbus, OH	23	2,041,520	1.13	1.67
Durham-Chapel Hill, NC	9	559,535	1.61	2.15
Hampton Roads, VA	12	1,726,907	0.69	0.99
Nashville, TN	21	1,865,298	1.13	1.53
Philadelphia, PA	31	6,070,500	0.51	0.65
Pittsburgh, PA	17	2,342,299	0.73	0.92
Richmond, VA	19	1,281,708	1.48	1.67
Salisbury, MD-DE	7	400,200	1.75	2.03
Washington, DC	55	6,131,977	0.90	0.98

Source: Data on establishments and location quotients for establishments are from the Quarterly Census of Employment and Wages for NAICS 31212. Population figures are from the Bureau of Economic Analysis.

There is a growing trend of large West Coast craft breweries opening satellite locations east of the Mississippi. Several cities in Virginia have been the beneficiaries of this expansion. For instance, two California breweries, Stone and Green Flash, opened facilities to service the East Coast in Richmond and Virginia Beach, respectively. These breweries have provided both cities with increased credibility among beer enthusiasts, and attracted craft beer tourism to each area. It is not out the ordinary for a craft beer drinker to make a trip to either large brewery, and visit several local establishments in the process.

This expansion has not always been smooth, however. In March 2018, a little over a year after beginning production in Virginia Beach, Green Flash closed that operation. In the aftermath, reports pointed to increased competition and the brewery's overextension of debt to finance its expansion. Green Flash's closure speaks less to the desirability of Virginia Beach as a craft beer destination, and more to the growing competition among national distributors in the craft beer market.

Local Craft Development: When Craft Beer Brews Up Some Businesses And Harms Others

Craft beer and craft breweries have come a long way from their modest home-brewing and beer club roots. Whole industries have emerged around the craft scene, ranging from apps like Untappd, for beer enthusiasts to track and rate beers and breweries, to universities offering brewing degrees, among others. At the local level, craft breweries can serve as an impetus to economic growth and spur the creation of other brewery-related businesses. However, they can also serve as a source of competition with other local venues for scarce entertainment spending. In this section we examine the role craft breweries can play in local economic development.

Recent studies have attempted to quantify the total economic impact of the craft brewery industry on a variety of different geographies (city, state and national). These are typically done by, or on behalf of, industry trade groups. For example, the Brewers Association produced a report that found the craft brewery industry contributed \$67.8 billion and more than 456,000 full-time equivalent jobs to the U.S. economy in 2016, while it purported that Virginia saw a \$1.37 billion boost in economic activity. The Brewers Association finds an even larger amount of overall employment created by the craft brewery industry.

These reports typically use multipliers to quantify the total economic impact of the craft brewery industry. The models are based on a series of assumptions on how the local economy functions. These assumptions are critical to generating the final economic impact, and differing assumptions can lead to disparate results. Our goal here is not to critique individual studies or undertake our own economic impact analysis of the craft brewery industry in Hampton Roads. Instead, we will use some of the core components from economic impact models and insights from urban economics to flesh out the effect of the burgeoning craft brewery industry on the Hampton Roads economy.

The first critical assumptions relate to how economic activity "ripples through" and "leaks" from the region and the Commonwealth. The ripples start with spending on constructing and operating a brewery – wages to employees, raw material, brewing equipment, etc. Economic development practitioners typically refer to the initial spending as the "direct effect." We can see the labor portion of this by looking at the employment and wages for workers in the brewery industry.

Table 6 provides details using data from the 2016 Quarterly Census of Employment and Wages. Hampton Roads fares well on these metrics compared to other regions, with over 600 people working at a brewery in some form and annual wages per employee topping out at \$83,000. We must temper this good news with the perspective that there were about 770,000 jobs in Hampton Roads in 2016. Craft brewing is growing but remains a small player in the jobs picture in Hampton Roads.

TABLE 6				
CRAFT BREWERY EMPLOYMENT AND WAGES FOR SELECTED AREAS, 2016				
	Employment	Total Annual Wages	Annual Wages per Employee	
Asheville, NC	982	\$34,082,727	\$34,707	
Baltimore, MD	181	\$6,747,988	\$37,282	
Charlotte, NC	673	\$23,797,888	\$35 <i>,</i> 361	
Cincinnati, OH	1,045	\$78,772,978	\$ 7 5,381	
Columbus, OH	719	\$53,584,829	\$74,527	
Hampton Roads, VA	627	\$52,085,565	\$83,071	
Pittsburgh, PA	328	\$10,903,885	\$33,244	
Richmond, VA	267	\$7,267,779	\$27,220	
Salisbury, MD-DE	173	\$8,077,324	\$46,690	
Washington, DC	634	\$1 <i>7,</i> 121 <i>,</i> 031	\$27,005	
Source: Data from the Quarterly Census of Employment and Wages for NAICS 31212				

The QCEW uses data from establishments, so workers with more than one job would be counted more than once. Thus, hidden within the employment and wage numbers is the craft brewery industry's tie to the so-called "gig economy." The gig economy has become more prominent in recent years with the advent of companies like Uber, Lyft and Airbnb. In the craft brewery world, only a handful of "full-time" workers undertake the actual brewing and other day-to-day brewery operations. Many of the employees are part-time workers, such as teachers, who enjoy the atmosphere and attractive hours offered by craft breweries. Similar to other part-time or gig jobs, craft breweries are helping to supplement incomes for many households. In total, more than \$52 million in wages was paid to brewery workers in Hampton Roads in 2016.

The initial splash comes from the spending by the craft brewery. There are further ripples from spending by brewery suppliers and their employees. All of this economic activity helps support jobs and additional spending. Combined, the initial splash and subsequent ripples make up what economic development practitioners refer to as the "multiplier."

However, the size of the multiplier and the ripple effects is determined by how much spending leaks out of the economy. Let's start by thinking of the craft brewery industry's effect on the economy as beer flowing into a stein. The money that flows through our local economy is akin to beer being poured into the glass. However, some of the beer spills, or leaks, out of the stein as frothy foam or due to an overly exuberant pour. As more spending leaks out of the region, the economic impact of the craft brewery industry diminishes. For craft brewing this could come from equipment purchased from California or Germany, or hops from Yakima Valley in Washington. Similarly, the economic impact depends on how much of their wages brewery employees spend on local goods and services. In general, economic ripples inside Hampton Roads and Virginia that are generated by the craft brewery industry are reduced when expenditure leakages occur.

The initial splash and ripples are important; however, we shouldn't forget about the amount of beer poured into the glass. Put another way, in the absence of a local craft beer scene, some spending would still take place in Hampton Roads, while some would certainly leave the area. The most likely beneficiaries would

be craft breweries in Richmond and North Carolina. Keeping some of the spending local outweighs it all draining out of town.

Next, any economic impact study must also rely upon assumptions concerning the degree of "agglomeration" – often referred to as clustering – that is present. While it might seem counterintuitive for breweries to locate near each other and compete for drinkers, businesses in related industries often benefit as they cluster together in the same area.

First, agglomeration can increase a brewery's profit potential on the production side by increasing labor supplies, reducing costs, stimulating firm productivity

Entrepreneurship in Distribution

The majority of craft breweries distribute their beer, at least to some extent, outside of the brewery. However, a 1920s Prohibition-era law forces brewers to go through wholesale distributors to sell their beer at restaurants, bars and retailers. The macro brewers are able to leverage their size in this process, but for small breweries, this is a very small part of their business, sending a few surplus kegs or bottles to local restaurants. The desire to sell their beer in retail outlets is typically less about higher profits - it is more lucrative to sell at the brewery - and more about winning new customers that might not normally visit their brewery. For these smaller breweries it is tough to gain traction with one of the region's larger distributors because of the high production demands. Pretty Ugly Distribution in Chesapeake, an offshoot of Big Ugly Brewing, is filling this void. Pretty Ugly began distributing Big Ugly beer and has expanded to other small breweries within the region. While not a large venture, Pretty Ugly has found a unique and important home in the craft beer marketplace.

and spurring innovation. The craft brewery community is known for its high degree of congeniality and collaboration. This has carried over from the early days when craft brewers would share knowledge to legitimize the industry and increase sales in a battle against the common foe – macro brewers.

Nowadays it is common for larger, established breweries to aid their smaller counterparts. While the brewing process may be largely a science, running a successful brewery is still largely an art form. The art is often shared among those inside the industry – such as an established brewery like O'Connor serving as a training ground for future entrepreneurs (for example, the founders of Young Veterans Brewing Co.), or breweries collaborating on specialty brews. This commitment to a vibrant local beer culture has even extended to the sourcing of raw materials. Sierra Nevada, which opened an East Coast production facility in Asheville, reportedly buys bulk commodities and sells them at lower prices to small breweries. The agglomeration effects for production reduce the cost (and risk) to starting a brewery in an area that already has a craft presence.

The clustering of craft breweries in a region or neighborhood can also stimulate demand and increase foot traffic. Increasing the number of drinkers that make their way through the doors is appealing to many brewers because of the high profit margin from on-premise sales. Graph 3 showed that in several places within Hampton Roads, breweries are located in close proximity to each other. In fact, it is not uncommon for a brewery to experience a boost in sales when a competitor opens nearby. The increased sales are due to customers attracted to a wider variety of beer options and brewery atmospheres they can experience in a single trip. While it may have been a strategic decision to leverage the reputation and marketing of their rivals on the part of BenchTop and Rip Rap by locating mere blocks from Smartmouth and O'Connor, nonetheless these moves will likely lead to a profitable outcome for both breweries and create a brewing district that is convenient for many drinkers.

A single large anchor brewery can put a city or region on the craft beer map. In the same way, several breweries close to each other can do the same for a neighborhood, creating a local beer district. The revitalization of manufacturing and warehouse districts has been a common theme nationally

in the craft beer renaissance. Beer production is an inherently capital-intensive process. It requires a significant amount of space and high-pitched ceilings for the large fermentation tanks. This, along with relatively inexpensive rent, has made old warehouses an attractive option for brewers. Norfolk's Chelsea neighborhood, which is located west of Hampton Boulevard near EVMS, is an example of this type of urban renewal in action. It is now home to Smartmouth, BenchTop and the highly acclaimed non-brewery, The Birch, which bills itself as a craft beer, cider and grilled cheese bar. Those who remember Chelsea 10 years ago would be pleasantly surprised by the transformation that has taken place, which is in no small part due to great food and craft beer.

Economist Joseph Schumpeter coined the term "creative destruction" in the 1940s to describe the process whereby innovative products and industries disrupt the status quo. Schumpeter was coming of age in an era when the automobile was replacing the horse and blacksmith. The current craft beer trend has not produced the same upheaval as the innovations of Schumpeter's day. While craft beer market share has grown, it has not destroyed the "big beer" industry. However, the craft beer revolution has changed the local economy in Hampton Roads in subtle, yet important ways, many of which are difficult to measure using traditional economic impact models.

While starting a craft brewery is an entrepreneurial venture itself, a slew of ancillary businesses have also formed around craft beer. Only a few breweries in the region sell food from an in-house kitchen. Instead, most breweries focus on producing beer and often coordinate with other businesses to service their hungry drinkers. Food trucks are the most visible of these entrepreneurial businesses.

The number and variety of different cuisine options would almost certainly be lower without thirsty craft beer drinkers. In a similar fashion, some local businesses have seen an influx of orders to produce the merchandise sold at breweries, such as souvenir shirts and caps, pint glasses and even beer soap. Some of the merchandise production inevitably leaks to firms outside of the region or country; however, craft breweries often have a commitment to the community they serve. They participate in the spirit of the "buy local" movement by sourcing from local vendors. Finally, larger production facilities

have space dedicated to bottling and canning, although mobile canners have filled this void for space-constrained facilities.

Breweries also have turned into event and meeting spaces. They host a wide variety of community gatherings, including music festivals, along with arts and crafts shows featuring products created by local artisans. They also host weddings, wedding receptions, baby showers, trivia nights, book clubs, paint nights and the like. As hosting events gains popularity, some breweries have expanded or opened new locations to meet the growing demand. Big Ugly Brewing, for example, recently opened an expanded facility on Battlefield Boulevard in Chesapeake in the summer of 2018.

This brings us to the final part of the local economic development effect of craft brewing, which economists refer to as "crowding out." This relates to part of Schumpeter's notion of creative destruction, where the growth of the craft brewery industry can hurt incumbent businesses through increased local competition for scarce entertainment dollars. This is particularly tough to measure, because the decrease in spending is spread across many sectors of the economy, ranging from movie theaters to sporting events, and more.

Craft breweries compete most directly with restaurants and traditional bars. Restaurants could experience lower patronage and spending as customers visit local breweries. Furthermore, this competition has created some tension between breweries and bars in some areas. For example, some New Jersey bar owners boycotted selling locally produced craft beer, arguing that due to differences in regulations, the competitors were not playing on an equal playing field. ¹⁵ On the other hand, many bars have accepted locally produced craft beer, choosing to embrace the movement rather than get left behind. While this is a natural part of competition, it merely points to the fact that there are winners as well as some losers due to the rise of craft brewing.



¹⁵ http://www.nj.com/opinion/index.ssf/2017/09/should_liquor_licenses_be_required_at_craft_brewer.html.

Final Thoughts

The craft brewery industry in Hampton Roads has expanded rapidly in recent years. It is still an open question as to how many breweries and how much production a local area can sustain; nonetheless, the industry is likely here to stay. Craft breweries check several boxes on the economic development list. They can attract tourists and visitors, help brand an area and create local identity, and produce a product that can be exported. Craft breweries also represent a local amenity that some argue attracts well-educated, affluent people to a region and provides a local spending outlet. It fits in with what regional economic development guru Richard Florida would advocate to attract the "creative class" and spur local economic growth. Florida notes in his 2002 book "The Rise of the Creative Class" that cities should invest in amenities that attract the creative class type of people. This development strategy was discussed in depth in the 2013 State of the Region report. This group of people tends also to be what Florida refers to as "knowledge workers," who power economic growth. Therefore, it is important to consider whether we should be using public money to incentivize amenities like local breweries.

Several high-profile breweries in Hampton Roads have received economic development incentives to either begin or expand production – most notably, the Virginia Beach Development Authority's grant of \$275,000 to Green Flash Brewing Co., which as we noted previously, closed in early 2018. The decision to incentivize Green Flash to locate in Virginia Beach, instead of in a neighboring state, is water under the bridge. Nonetheless, it did provide some benefits. Chief among these is the credibility that Green Flash brought to the Hampton Roads craft brewery scene. The purchase by New Realm Brewing is a heartening sign that the facility will continue to be put to good use.

In general, it is important to keep in mind that amenities like craft breweries can simultaneously act as drivers of local growth and as an inevitable outcome of an economically and culturally vibrant region. This makes it similar to the chicken and egg conundrum. Does attracting cultural amenities like breweries increase growth prospects or do breweries naturally open in growing areas? While it might have made some sense to try and attract a big fish like Green Flash a few years ago, as the industry has grown, the economic rationale for

incentivizing breweries certainly diminishes. This is also true for local brewery expansions, such as Smartmouth and Young Veterans Brewing venturing to the Oceanfront. The industry is at a place now where breweries should pick locations based on demand for their product and consumers should determine the winners and losers.

