

The Economic Impact of the Craft Brewing Industry in Maine

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Executive Summary

This report outlines the economic impact of the brewery members of the Maine Brewers' Guild. The Maine Brewers' Guild is a nonprofit organization dedicated to promoting and protecting the craft beer industry in Maine. Their mission is to keep Maine in the forefront of the craft beer revolution by offering high quality and creative diversity for the customer. Craft beer production has seen substantial growth over the last decade and the number of breweries in Maine has tripled. Thus the industry has become a significant component of the Maine economy. This study surveyed members of the Maine Brewers' Guild to capture information on different aspects of the brewing industry including employment, output and their supply chain.

The survey also sought to forecast where breweries believed their businesses would be over the next 5 years. This data along with other secondary information has been used to estimate the overall economic impact of the Guild on the state of Maine, as shown below.

	Direct Impact	Multiplier Effect	Total Impact
Output	\$157,567,345	\$70,384,221	\$227,951,566
Employment	1,632	545	2,177
Labor Income	\$50,456,100	\$21,980,816	\$72,436,916

Some of the other key findings from the research:

- The Guild has grown to over 82 breweries, an increase of 16 over the previous year (2015/16)
- Craft breweries employ 1,632 people across the state directly, a further 545 indirectly.
- Estimated total revenue exceeds \$150 million
- Maine's output of beer now stands at 299,459 barrels
- Total wages and salaries were over \$50 million
- Geographically, brewery growth is spreading further north to central Maine
- 2018 output is forecast to increase by 39%

1. Growth of Craft Beer in Maine

Craft breweries in Maine have seen significant growth in numbers over the last decade with, on average, six new breweries opening each year. In 2015 the growth rate in Maine (25%) was nearly twice the US national rate (13%). This impressive growth rate reached a new high in 2016 with an additional 16 new breweries opening. The spatial distribution of breweries across the state has also evolved over the same period. Cumberland County still has the largest concentration of breweries (see figure 3), but over the decade other parts of the state, notably Penobscot, York, and Waldo counties have seen significant numbers of new breweries (see table 3). As of January 2017 there now remains only one county in Maine without a craft brewery, Piscataquis.

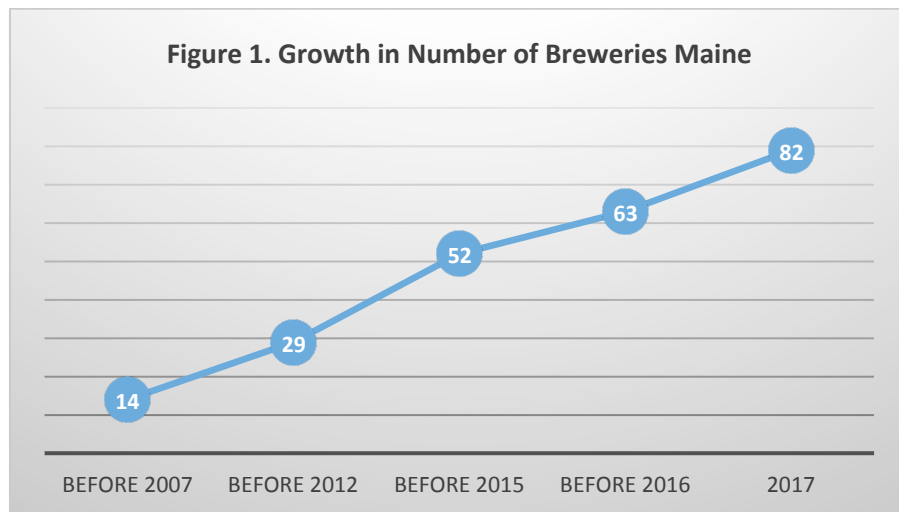


Table 1. Growth Rates. Maine Numbers of Breweries

Before 2007	2012	2015	2016	2017
14	29	52	63	82

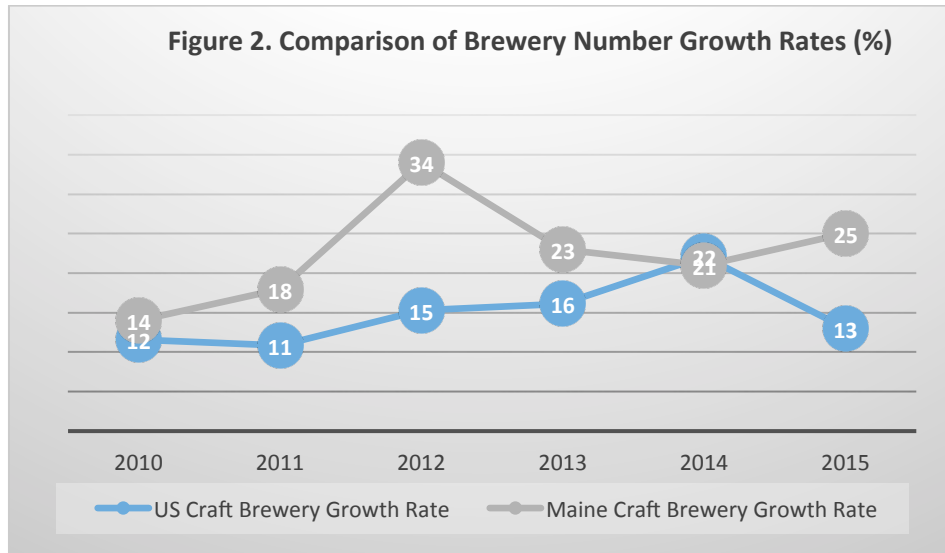


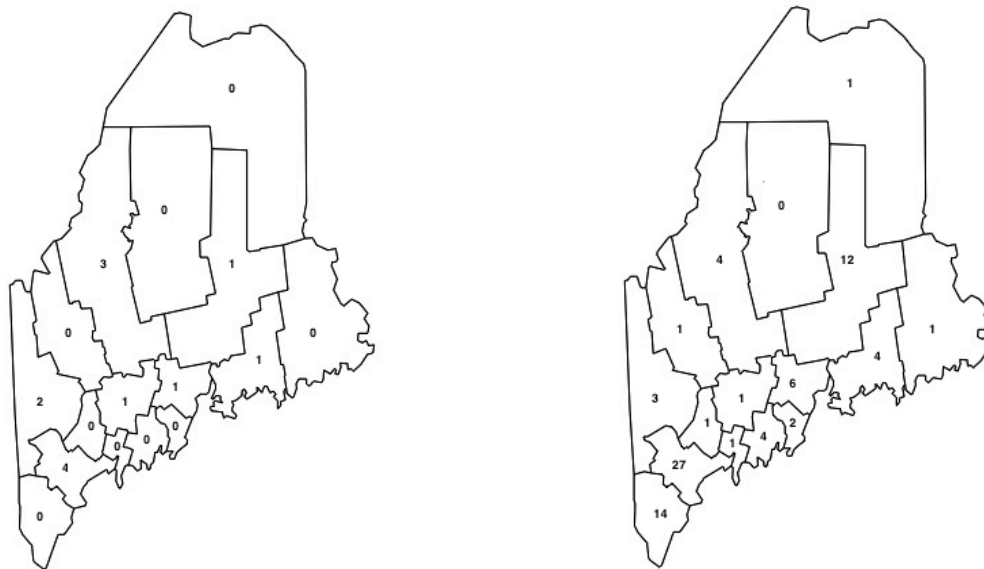
Table 2. Growth Rates. US and Maine Numbers of Breweries

Growth in Breweries (%)	2010	2011	2012	2013	2014	2015
US	12	11	15	16	22	13
Maine	14	18	34	23	21	25

* Data obtained and numbers estimated from Maine Survey 2017 and Brewers Association USA.

**The years selected were chosen due to available of data for comparison.

Figure 3. Change in Geographical Distribution of Breweries 2007- 2017



Maine 2007 Brewery Numbers by County

Maine 2017 Brewery Numbers by County

Table 3. Changes in Number of Breweries by County¹

County	2007	2017
Androscoggin	0	1
Aroostook	0	1
Cumberland	4	27
Franklin	0	1
Hancock	1	4
Kennebec	1	1
Knox	0	2
Lincoln	0	4
Oxford	2	3
Penobscot	1	12
Piscataquis	0	0
Sagadahoc	0	1
Somerset	3	4
Waldo	1	6
Washington	0	1
York	0	14
Total	13	82

2. Characteristics of Craft Breweries in Maine

Employment in craft breweries has grown to 1,632 full and part-time workers. Output in 2016 was estimated to be 299,459 barrels (there are 31 gallons in a barrel). This has grown by 25% since the last study published in 2013. Total labor income is now estimated at over \$50 million for 2016 (see table 6). The average wage being paid in breweries now stands at \$34,726. The types of breweries now operating in the state range from large-scale production to restaurants with small 200 barrel breweries. 82% of the industry is made up of small breweries producing less than 50,001 gallons. For ease of presentation and analysis the remainder of this report categorizes small breweries as those producing less than 50,001 gallons and large breweries as those producing over 50,001 gallons.

Table 4. Employment Data

Total Employment Full and Part-Time	Average Small Brewery Employment	Average Large Brewery Employment
1,632	6	61

¹ Data was calculated based upon the responses to the survey. This question had a 100% response rate.

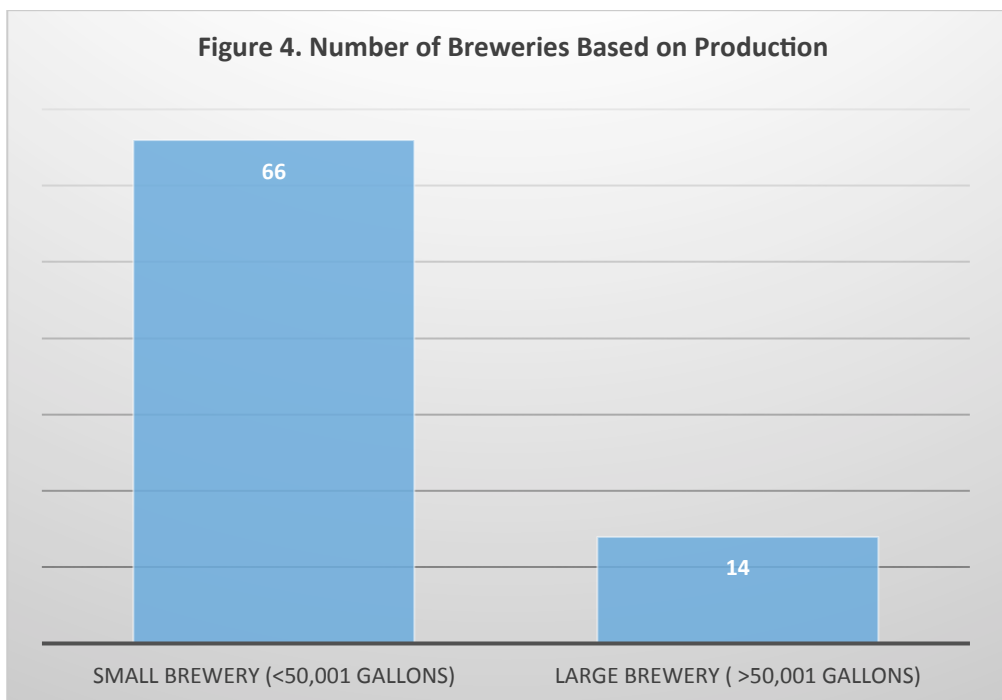
Table 5. Output Data

Total Barrel (31 Gallons) Output	Average Large Brewery Barrel Output	Average Small Brewery Barrel Output
299,459 Barrels	27,554 Barrels	520 Barrels

*Output here is referring to barrels (there are 31 gallons in a barrel).

Table 6. Labor Income Data

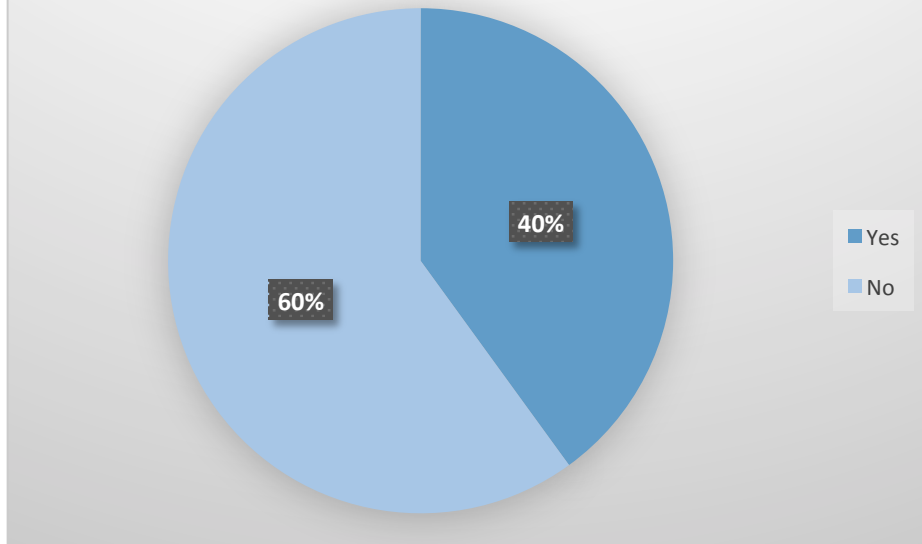
Total Labor Income	Average Large Brewery Salary	Average Small Brewery Salary	Average Brewery Salary
\$50,456,100	\$37,789	\$24,345	\$34,726 ²



² Labor income was estimated from the survey as well as supplementary data from the Bureau of Labor Statistics

³ For the purposes of this study we use the following definitions; Small Brewery is less than 50,001 gallons, Large Brewery is more than 50,001 gallons.

Figure 5. Percentage of Breweries That Operate a Restaurant or Serve Food at the Brewery or one of the Brewery Locations



3. Distribution of Beer

According to the survey, 53% of respondents said they were contracted with a distributor and 47% self-distributed. As a follow up respondents were asked where they distributed their beer. As expected, small breweries were strongly embedded in Maine with 96% of barrels being sold in state. However, the large breweries sent 63% of their beer out of state in 2016⁴. To further explore how distribution is achieved, breweries were asked about the percentage of their beer that is canned or bottled. Large breweries bottle or can 56% of their beer, small breweries bottle or can over a quarter of their production, 26%.

⁴ Interesting to note, although aggregated in the above figure, there is a growing international distribution of Maine beers

Figure 6. Distribution of Beer

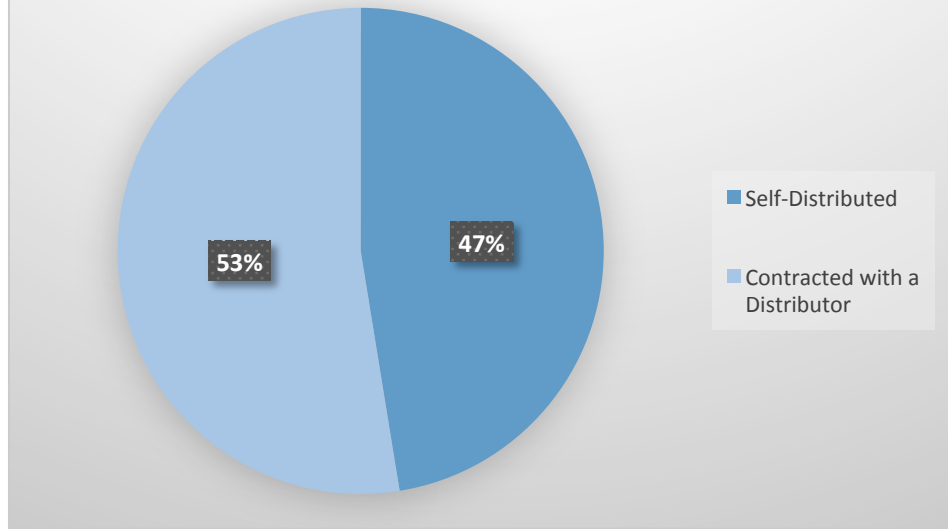
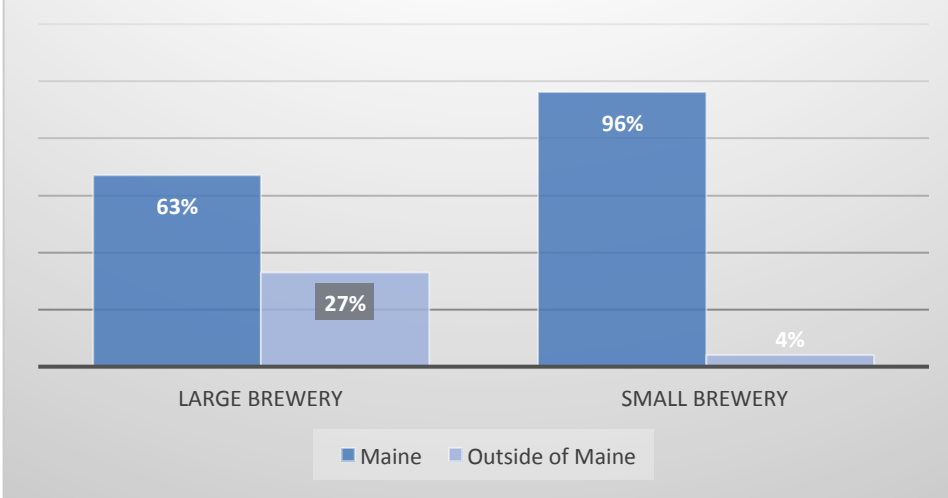
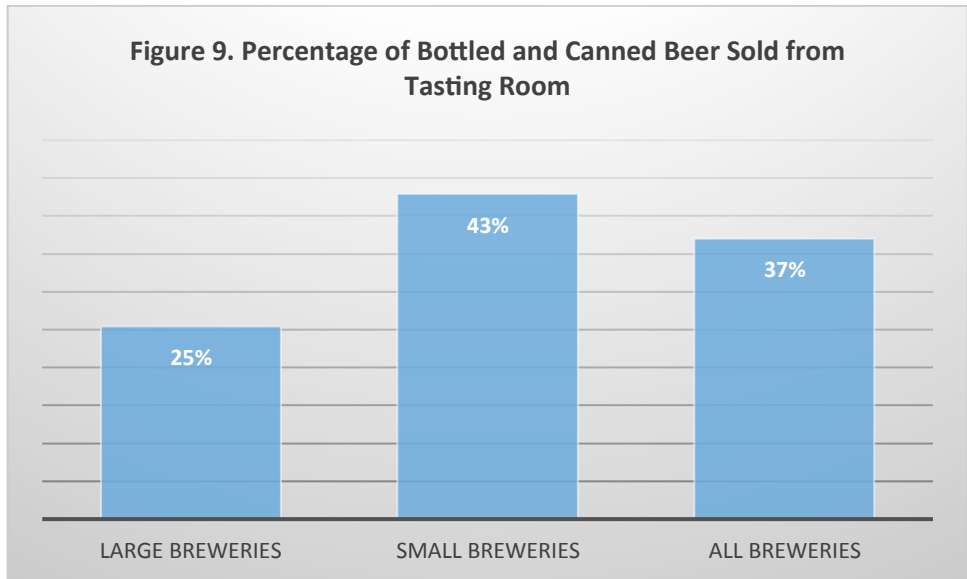
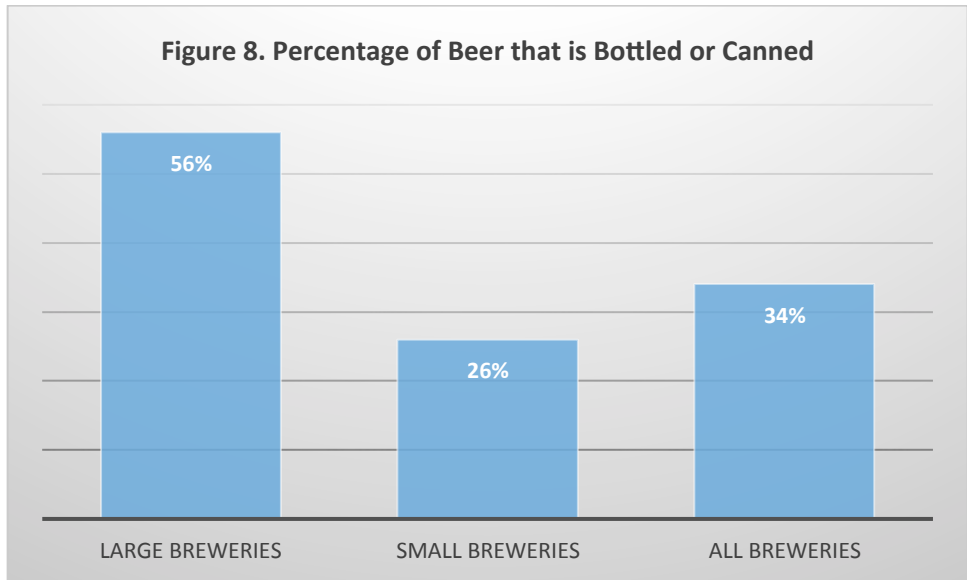


Figure 7. Distribution of Beer by Small and Large Breweries





4. Estimated Expenditure and Revenue 2016

Average expenditure by categories (see table 7) was estimated for small and large breweries. It found that raw material inputs made up the most significant component of expenditure for large breweries, with grain being the highest individual cost. In comparison small breweries on average were more likely to spend a significant amount of expenditure on equipment, 36%.

The author of this study would suggest that given the number of new breweries that commenced operations in the last year, equipment expenditure will vary greatly year on year. Another notable expense for the large breweries is energy costs coming in after raw materials as one of the highest costs. For small breweries packaging is the third highest expenditure. Estimated sales topped \$150 million in 2016, which is a 17% rise from the previous study conducted in 2013 (see table 8). The sources of these revenues varies considerably between the large and small breweries in the study. Large breweries are estimated to have made 57% of revenue from out of state beer sales, whereas for small breweries the figure was only 9%. Revenue for small breweries was mostly from in-state beer sales at 41%. For large breweries, beer sales in total accounted for 88% of revenue, whereas small breweries accounted only 50% of their revenue from beer sales with tasting room sales and merchandise also contributing significantly.

Table 7. Categories of Expenditure

Category of Expenditure	Average Expenditure Large Brewery	Average Expenditure Small Brewery
Utilities	\$137,765	\$9,000
Grains/Malt	\$2,784,984	\$19,625
Hops	\$178,500	\$4,962
Packaging	\$257,500	\$10,000
Professional Services Legal	\$48,879	\$2,435
Trades e.g. Plumbing/Mechanical	\$35,000	\$6,400
Advertising/ Marketing	\$95,500	\$2,633
Equipment Expenditure from within Maine	\$136,500	\$36,416
Lease Charges (equipment, facilities, kegs)	\$35,683	\$19,333
Total	\$3,710,311	\$110,804

* For the purposes of this analysis median values were used

Table 8. Total Sales⁵

Estimated Total Sales	Increase from 2013 Previous Study
\$150,567,238	17%

⁵ This figure was estimated from the survey responses along with statistical extrapolation.

Figure 10. Large Breweries Sources of Revenue

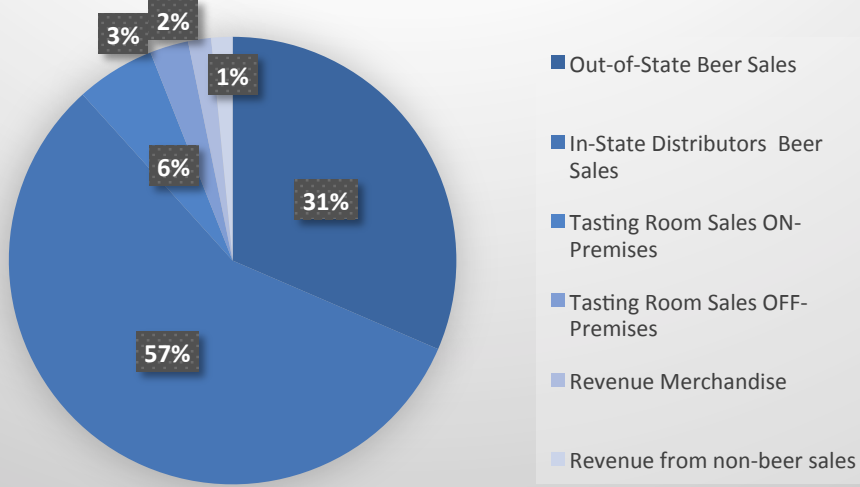
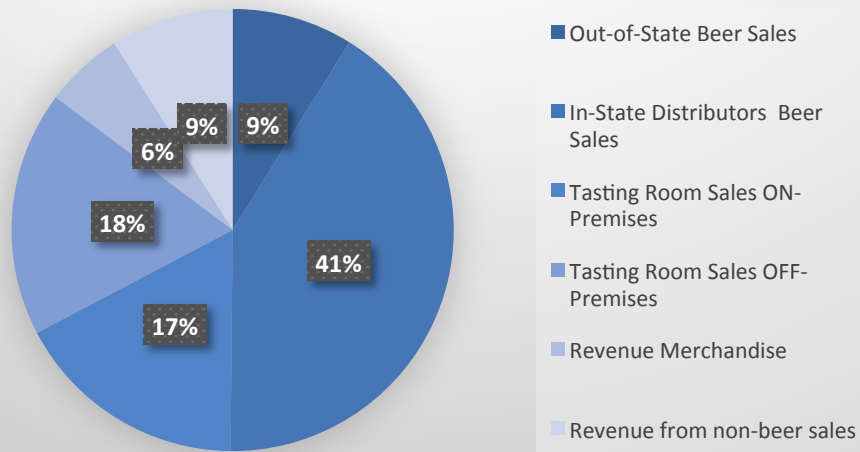


Figure 11. Small Breweries Sources of Revenue



5. Economic Impact

Table 9 presents information on the estimated economic impact of the Maine Brewer’s Guild for 2016. The direct spending figure was estimated using data from the survey of craft breweries, this also allowed the estimation of employment and labor income. The multiplier effect can be interpreted as the in-state economic activity supported by the expenditures of the craft breweries and their suppliers, and the employees who work in these companies. To establish the multipliers, we make use of the IMPLAN model. IMPLAN estimates multipliers using an input-output framework that traces flows of expenditures and income through the economy with a complex system of accounts that are specifically tailored for the region under study, in this case Maine. For more detail about the modeling method please consult section 7 below. The total impact below is the sum of the direct impact plus these multiplier effects.

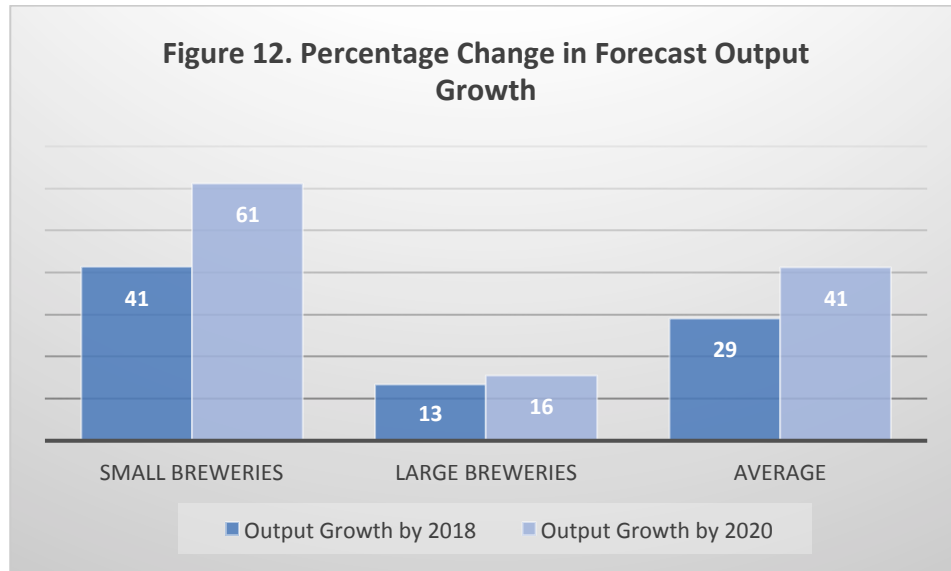
Table 9. Annual Statewide Economic Impact of Maine Brewers’ Guild

	Direct Impact	Multiplier Effect	Total Impact
Output	\$157,567,345	\$70,384,221	\$227,951,566
Employment	1,632	545	2,177
Labor Income	\$50,456,100	\$21,980,816	\$72,436,916

Notes: The direct spending figure comes from the estimated total revenue (see section 4). The Employment figures combines both full and part-time. Labor income has also been estimated in the present study (see section 2).

6. Forecast Output and Employment

Output in Maine looks strong for the next five years, with breweries anticipating growth of 39% by 2018, and 41% by 2020. Small breweries on average forecast the highest expected output 61% by 2020. The growth forecasts for larger breweries is more modest but nevertheless significant at 13% by 2018 moving to 16% in 2020. Geographically Penobscot County breweries are forecasting the highest average growth at 92%, the Cumberland County average forecast was 89% with York County coming in at 80%. Employment is also forecast to rise across all breweries who responded to the survey with the average number of employees set to rise to 20 by 2020. Small breweries forecast a further three people on average being employed by 2020. The Large breweries forecast robust growth with their workforce on average doubling in employment. Importantly the study also questioned about the capacity of breweries to grow. 79% of small brewery respondents indicated they had capacity to grow compared to 56% of large breweries.



*Output is measured in terms of production of beer

Table 10. Output Growth

% Change	Small Breweries	Large Breweries	Average
Output Growth by 2018	41%	13%	39%
Output Growth by 2020	61%	16%	41%

Table 11. Output Growth by County

Average Percentage Output Growth by 2020	
Penobscot County	92%
Cumberland County	89%
York County	80%
Waldo County	79%
Hancock County	78% ⁶

⁶ These are the average forecast growth figures, to qualify a minimum number of respondents was chosen to have confidence in the output.

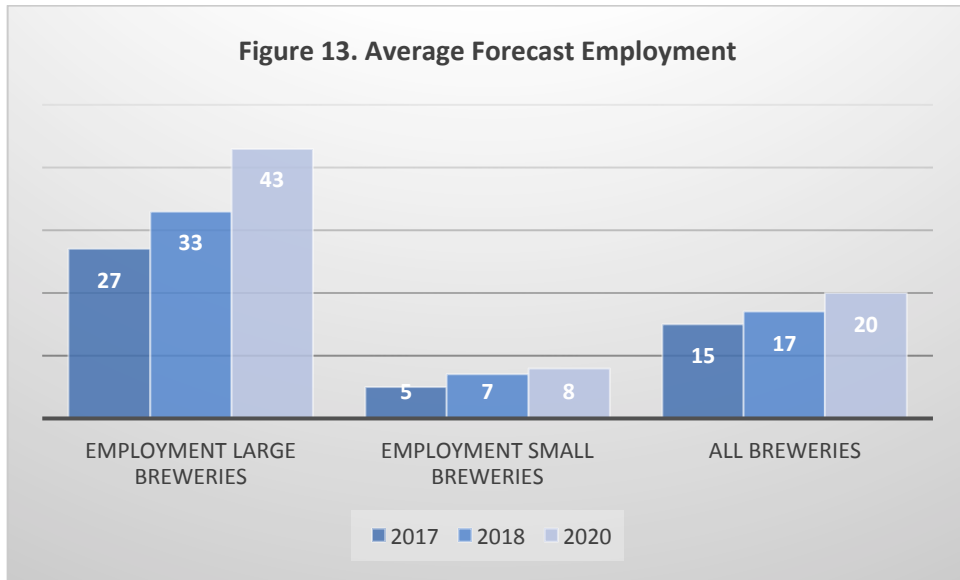


Table 12. Forecast Employment Growth

Forecast Employment Growth	Employment Large Breweries	Employment Small Breweries	All Breweries
2017	27	5	15
2018	33	7	17
2020	43	8	20

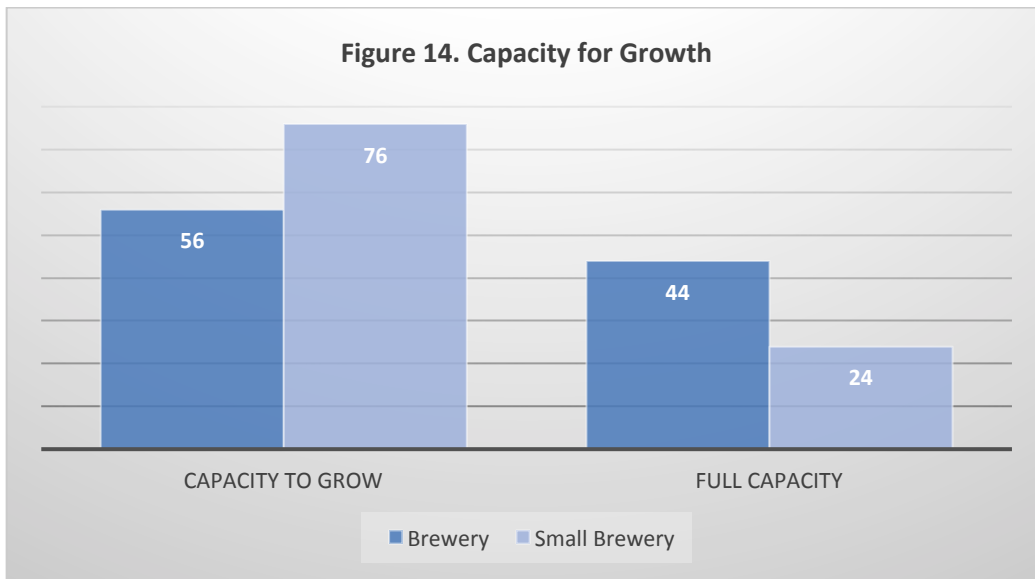


Table 13. Capacity to Grow (%)

%	Capacity to Grow	Full Capacity
Brewery	56	44
Small Brewery	76	24

7. Tax Estimation

Table 14 breaks down the estimated tax generated from the craft brewery industry in Maine. Excise duty is estimated using the official state report on production produced by the Bureau of Alcoholic Beverages & Lottery Operations (BABLO). The other taxes were estimated from the survey responses as well as IMPLAN.

Table 14. Estimated Taxes Generated by the Craft Beer Industry

Maine Excise Taxes	Income and Payroll Taxes	Local Property Taxes	Maine Sales Tax
\$1,300,908	\$1,929,637	\$567,358	\$2,745,990

8. A Note on the Data and Method

The survey that was used to estimate the data was collected online using Survey Monkey, it was sent to all members of the Guild during the month of January 2017. There was a response rate of close to 98%. Not all respondents completed the survey in its entirety, as a result some of the figures were estimated using statistical methods calibrating against all the completed responses. To maintain confidentiality averages were calculated instead of using absolute values.

IMPLAN is the acronym for “IMPact analysis for PLANing.” IMPLAN is a well established and widely used economic model that uses input-output analyses and account for over 500 industries to estimate regional and industry-specific economic impacts of a specific industry. Underlying the accounts is transaction data occurring between local businesses, spending patterns of households, and transactions occurring between local business and the rest of the world. To establish this IMPLAN uses data from County Business Patterns from the U.S. Census Bureau, Regional Economic Information System and the Bureau of Economic Analysis as well as the ES-202 statistics from the Bureau of Labor Statistics.

*^ This project was supported by the USDA National Institute of Food and Agriculture under Hatch projects #ME021823.