



Kavet, Rockler & Associates, LLC

Economic and Public Policy Consulting

242 Payson Road
Belmont, Massachusetts U.S.A.
Telephone: 617-489-6778

The Economic Impact of Craft Brewing on the Vermont Economy in 2014

**Prepared for the
Vermont Brewers Association**

November, 2015

The Economic Impact of Craft Brewing on the Vermont Economy

EXECUTIVE SUMMARY

The report documents the economic impact of craft brewing in Vermont for 2014. Based on our survey of over one-half of the Vermont Brewers Association (VBA) members, we have developed estimates of this industry's economic impact on the State of Vermont. The survey offered the only means of collecting reliable State-level data on the quantity and geographic location of labor and other inputs used in brewing, as well as income generated for business owners and tax payments made to local, State, and federal governments. Further, we included the impact of industry investment, based on the types of capital expenditures identified in the survey.

We estimate that Vermont's brewing industry operations and investments, including food sales, other merchandise sales at breweries and brewpubs, and new plant and equipment capital expenditures, generates \$199 million in total economic activity and 1,575 jobs in the State. This figure includes the direct effect of operations and investment of \$141 million and 1,138 jobs. The additional \$58 million and 437 jobs are the product of indirect and induced effects; The indirect effects arise from the economic activity associated with suppliers of goods and services to brewery operations and capital investment. The induced effects are estimated for the impact consumer expenditures derived from labor income earned in the direct and indirect activities.

Vermont's breweries are not small versions of U.S. brewing. The dominant U.S. beer producers operate very capital intensive, large breweries that employ relative few workers. Vermont brewing, on the other hand, is very small scale and highly labor intensive. The industry relies less on transportation, packaging, and warehousing than its U.S. counterpart, very much in keeping with the focus of craft brewing in serving predominantly local markets.

We have also estimated that brewing in the State, even with very conservative assumptions, contributes significantly to the State's travel and tourism industry. We developed a conservative estimate using a small fraction of State visitation to estimate that \$51 million in travel and tourism could be attributed to brewery tourism - and this figure could be higher. Attribution of travel and tourism expenditures to specific industries is difficult to do with available information, which does not include brewery visitation as a key activity. This should be included in future travel and tourism surveys conducted by the State.

INTRODUCTION

Kavet, Rockler and Associates, LLC (KRA) conducted a study of Vermont craft brewing on behalf of the Vermont Brewers Association (VBA.) Our purpose was to estimate the economic impact of this rapidly growing industry on the State economy.

Because the statistics for the brewing industry as a whole are dominated by a handful of very large producers (none of which operate in the State), nearly all of federal statistics commonly used to measure and assess economic characteristics of this industry are biased in favor of large firm operations. When it comes to critical measures of output, labor productivity, and production requirements, these statistics are likely to be misleading when evaluating relatively small-scale operations, such as those found in Vermont.

For this reason, we developed and conducted a custom survey of Vermont brewers to obtain accurate and timely information. In this survey, we asked brewers to answer questions regarding employment and payroll, expenditures on goods and services purchased in the course of brewing and brewpub operations (both in- and outside Vermont), the number and origin of brewery and restaurant visitors, and several other matters related to the industry.

The results of this survey process prove that differences between Vermont's brewery industry and that of the greater U.S. are real and sizeable. In this report, Vermont's industry will be shown to be significantly more labor intensive, while less reliant on inputs such as transportation, warehousing, and packaging. With a higher proportion of its sales derived from restaurants and direct sales channels, it is very different from the general U.S. practice where producers package their products for transportation, ship to wholesalers, and then have the wholesalers ship to retailers for final distribution.

Our report is comprised of five sections, including this introduction. In the next section, we describe the survey designed for collecting quantitative and qualitative data. In the third section, we present the direct employment, income, payroll, and value-added generated in the State's brewing industry as well as the total economic impact of the industry. We offer comparisons with both the national industry and detail as to the composition of direct impact. To estimate the total economic impact of the industry on the State, we used the IMPLAN model to estimate both the indirect effects of goods and services purchases used in brewery/brewpub/brew-restaurant production and the induced effect tied to the spending of income earned in the direct and indirect stages of production. We also include survey results for 2014 investment in new plant and equipment that represents another significant contribution to State economic activity. In the fourth section, we discuss the qualitative findings derived from the survey regarding the State's image as it relates to firms' business performance and the promotion of the industry among travelers, tourists, and beer aficionados via the

Vermont Brewery Passport program. Finally, we offer a summary of findings. An appendix that includes the survey questionnaire is also included.

SURVEY DESIGN AND DATA COLLECTION

The survey population used for this study is the VBA member list of brewers and brewpub operators. At the time the survey was developed and distributed (March, 2015), the VBA mailing list consisted of 69 individual members representing 37 firms. At around the same time, the VBA map showed the total number of firms to be 41, and national Brewers Association (BA) showed 46 firms on their website. For purposes of calculating the survey response rate to determine the degree of scaling required to estimate values for the whole Vermont industry, we used the 46- firm figure.

We note that the 2012 Census of Manufactures from the U.S. Bureau of the Census shows an establishment count of 14 for 2012. This figure is intended to be all inclusive of individual proprietorships, partnerships, and corporations in which brewing is the primary activity (i.e. where brewing accounts for the largest share of revenue.) We do not believe, however, that Vermont's industry is growing at the implied 81 percent annual rate to reach 46 firms in 2014 from 14 in prior two years. We suspect that the apparent Census undercount is due to out-of-date establishment records that failed to identify new producers over a longer time interval. It may also be that some firms "missing" from the Census could be classified as a different industry, i.e., restaurants and bars.

A large proportion of VBA members offer food services at their brewing location, either because the enterprise is a brewpub, or has food services to complement product sampling and tasting. In being multiproduct businesses, part brewery and part restaurant, we anticipated that these Vermont businesses' labor intensity and production requirements will differ greatly from their high-volume brewing counterparts depicted in the Census data, where food service plays an insignificant role in the value of goods and services produced in larger breweries.

CONDUCT OF THE SURVEY

The survey was developed to be during March and April, 2014 and pilot tested with twelve VBA Board of Directors for several weeks starting April 24, 2015. After that period, the survey was revised and distributed during the first week of June to all regular members. Reminders to return the completed questionnaires were sent in July, but after having received only 14 completed questionnaires, we began a process of phoning respondents, who after being contacted directly, were emailed a new copy of the questionnaire. Twenty-one completed questionnaires were received by September 7, 2015. The last six questionnaires were received without identifying numbers, unlike

those that were sent in the mass e-mailings, which makes identification of those respondents impossible.¹

The twenty-one questionnaires were reviewed for completeness and reasonability of responses. In several instances, respondents had apparently entered proportions instead of percentages, and in some instances, entered values in thousands of dollars, which when adjusted to whole dollar figures, made sense in the context of the question and their other responses. This data cleaning process took several days and was completed in mid-September.

The analysis of the responses, including tallying results and data analysis was completed in mid-October, having prepared the data for use with the IMPLAN input-output model of the Vermont economy. We discuss the analysis and estimation related to Vermont's brewery operation in the next section, followed by a section on the total economic impact.

¹ The absence of identifiers makes it hard to evaluate whether the response pool has any size-related bias. We know of one brewer that has a policy not to provide any data to persons outside the company. This company is one of the larger producers. However, absent the data, it is not possible to make any bias-adjustment. This leads us to treat our respondents as proportionately representative of the industry as whole.

ESTIMATED ECONOMIC IMPACT OF BREWING

In this section, we present our quantitative findings with respect to the quantitative characteristics of the Vermont craft brewing industry. First, we present the direct measures of the industry's operating characteristics. We follow this with the IMPLAN-based estimates of secondary and tertiary economic activity generated by the brewing industry, and present the various multipliers commonly used to summarize such estimates. These results refer specifically to the operating characteristics of the industry. We have also estimated the economic impact associated with brewing industry investment, and identify both the direct amount invested and the total impact on Vermont of those expenditures. Following that, we use respondents' estimates of visitor numbers and proportion from outside Vermont to present estimated travel and tourism expenditures linked to brewery tourism.

DIRECT IMPACT OF VERMONT BREWING

Based on the twenty-one completed questionnaires and a universe count of forty-six breweries in operation during 2014, we have estimated the total direct impact of brewing and related business activity. The estimates are scaled values from respondents who reported financial and employment data. The scaling factor is the reported value times 2.3, the total population divided by number of respondents.²

Direct impact refers to the economic effect of a firm or industry's operation. It can be measured several different ways, including the total value of output (also termed "sales" and/or "revenues"), total employment, total payroll (often including fringes), total taxes paid, and by value added, which is total output minus the value of all goods and services purchased for use in production (e.g., grains, hops, energy, water, transportation, packaging, etc.) minus net change in inventories.³

In Table 1, we show a summary of direct impact statistics for the Vermont brewing industry's operations. We estimate the total revenue of the industry at \$131.2 million, which includes all brewery, food sales, and merchandise sales. Note that, as reported by survey respondents, food sales amount to nearly one-third that of brewery products. From the standpoint of the Vermont economy, this is a significant and fast-growing source of new demand for Vermont agricultural and prepared food products.

² A key assumption when performing this form of scaling is that the portion of the population surveyed is representative of the industry as whole, with no material difference in their operating characteristics. While we have no reason to believe there are significant differences, we acknowledge that these are possible and might affect the accuracy of our industry-level and subsequent estimates.

³ We ignored inventory changes in so much as most Vermont output is sold directly at the brewery or held by distributors, beyond the control of the brewers. Product on-hand awaiting shipment is a form of inventory, but taken together for the entire industry is not likely to represent a major quantity of finished product.

Also, note that nearly 10% of brewery products are sold directly for off-premise consumption. This share goes to consumers without going through distribution channels that normally include transportation and warehousing. We will discuss this further, in our analysis of the indirect impact of brewing, i.e., the linked sectors to brewing that increase value-added in the State economy.

With respect to other estimates of the industry's output, we note that the IMPLAN model estimates industry direct output to be \$277 million for 2014, nearly double our figure. IMPLAN's estimate, however, is premised on the assumption that Vermont output per worker and U.S. output per worker are the same. Using this figure of just over \$1 million per employee, IMPLAN applies it to an updated 2012 Census of Manufactures employment figure, which stood at 271 employees to attain that total industry output. Our estimate, made using the survey data to develop total output and number of workers results in an output per worker figure that is one-seventh the size of IMPLAN's value at \$123,800 per worker, a figure slightly lower than the State average of \$141,700 for all industries.⁴ As noted earlier, Vermont brewing firms are vastly smaller than their larger U.S. mass-brewing counterparts and have lower output per worker owing to the higher labor intensity and much smaller plant size.

⁴ Craft brewing in Vermont ranks 249th of 378 sectors with respect to output per worker. By comparison, U.S. brewing ranks 44th of 532 sectors, with \$1,024,000 worth of output per worker.

Table 1

SUMMARY OPERATING STATISTICS FOR VERMONT AND UNITED STATES BREWING , 2014

MEASURE	VERMONT TOTAL	UNITED STATES TOTAL
Total Revenue ("Output")	\$131,247,386	\$38,509,230,000
Brewery Products	\$99,552,108	NA
<i>Sales for Off Premises Consumption</i>	\$9,555,352	NA
Food Products	\$27,705,352	NA
Merchandise	\$3,989,927	NA
Jobs (Full & part time workers+working owners)		
	1,060	NA
Full and Part-Time Workers	934	37,621
Working Owners	124	NA
Employee Compensation ("Labor Value Added")		
	\$24,946,347	2,946,444,000
Percent of Total Output	19.0%	7.7%
Intermediate Purchases (Brewing and Food Service Goods/Services Inputs)		
	\$69,613,967	\$23,657,970,000
Percent of Total Output	53.0%	61.4%
Proprietor's Income and Profit ("Nonlabor Value Added")		
	\$26,126,731	\$5,861,076,900
Percent of Total Output	19.9%	15.2%
Proprietor's Income	\$7,524,499	\$359,365,900
Other Property Income	\$18,602,232	\$5,501,711,000
<i>Brewing Nonlabor Value Added</i>	\$20,706,838	NA
<i>Nonbrewing Nonlabor Value Added</i>	\$5,419,893	NA

Taxes (not including personal income or corporate income taxes)	\$10,560,341	\$6,043,744,000
Percent of Total Output	8.0%	15.7%
Local (Property & Other)	\$915,573	NA
State* (Malt Beverage, Sales Tax, Meals Tax)	\$5,999,995	NA
Federal (Beer excise tax @ \$7/barrel)	\$3,644,774	NA

*From FY2014 Malt Beverage Tax, adjusted by +3.63% to derive calendar year 2014 estimate

Source: Kavet, Rockler and Associates, LLC., IMPLAN Group, LLC., and Vermont Tax Department

Another important comparison can be made between our estimate and that from the Census of Manufacturers, which as we noted before, relied on 14 establishments. Based on that, the Census estimate of total output was \$109 million in 2012. In view of the two flawed sets of output data we examined, we believe our results are reasonable, and comparable to other studies in which the data were developed independent of the Census Bureau figures.⁵

Relative comparisons to several other U.S. figures show the degree to which Vermont differs from the nation. Labor intensity can be measured by comparing the amount paid as employee compensation (which consists of payroll, employer contributions to social insurance, and fringe benefits) to total output. As shown in Table 1, for Vermont, labor as a percent of total output is 19 percent. By way of comparison, for the U.S., the corresponding percentage is approximately 8 percent, about one-half the Vermont rate. Profitability in Vermont appears to be moderately stronger than the national figure. "Nonlabor value added", which includes profits and proprietor's income, totaled \$26.1 million, 19.9 percent of total output. The comparable figure for the U.S. represented 15.2 percent of total output.

In terms of total taxes paid, Vermont had 8.0 percent of total revenue paid in all forms of tax versus nearly 16 percent for the U.S. The higher U.S. figure is the product having a much higher proportion of U.S. revenues being subject to the federal beer excise tax at its highest rate (\$18/barrel for producers of more than 60,000 barrels compared to \$7/barrel faced by Vermont producers who fall below that 60,000-barrel cut-off.) Another reason for low relative taxation in Vermont is that a significant portion of total revenue is from food and merchandise sales, which are taxed at 9 percent and 6 percent respectively.

⁵ See Colorado Brewers Guild and Business Research Division, Leeds School of Business, University of Colorado at Boulder. 2014. "Craft Brewers Industry Overview and Economic Impact 2012 and 2013". Boulder, CO. March, 2014. http://coloradobeer.org/wp-content/uploads/2015/08/White-Paper_Colorado-Brewers-Guild-Economic-Impact-Study_Final-Report-2014.pdf

Taxes paid to the State consist of a Malt Beverage excise tax (\$0.265 per gallon for malt beverages with an alcohol content of 6% or less, and \$0.55 per gallon for malt beverages with an alcohol content greater than 6%), the meals tax rate (9%) applied to food sales, and the sales tax rate (6%) applied to merchandise sales. The higher proportion dedicated to compensation, profit, and taxes leave a significantly lower proportion of total revenue to go to State intermediate suppliers, in this case \$69.6 million.⁶

The actual economic impact of brewing on the State is somewhat overstated by the total industry output, owing to payroll paid to out-of-State workers and goods and services from outside suppliers. After controlling for "leakage" to other states and countries and controlling for taxes paid to the federal government, Vermont retains approximate 62 percent of the total revenue as the real direct impact. The \$131.2 million is really the sum of bills paid in Vermont by Vermont breweries. As shown in Table 2, the State loses about \$2.5 million to persons working in Vermont breweries but residing outside the State. Beyond that, it loses approximately \$35 million to outside suppliers of intermediate goods and services. The State also sees approximately \$3.6 million moved to the federal government in the form of a beer production excise tax.

Table 2
Direct Economic Impact of Brewing Operations on Vermont, 2014

MEASURE	TOTAL U.S.	RETAINED in VERMONT	EXPENDITURES OUTSIDE VERMONT
Total Revenue	\$131,247,386	\$89,144,969	\$42,102,417
Employee Compensation	\$24,946,347	\$22,403,330	\$2,543,017
Intermediate Purchases	\$69,613,967	\$33,699,341	\$35,914,627
Nonlabor Value Added*	\$26,126,731	\$26,126,731	\$0
Taxes	\$10,560,341	\$6,915,567	\$3,644,774

*-Assumed to 100% Vermont

⁶ With respect to State taxes, we used State Malt Beverage tax receipt data for that excise tax portion of State tax receipts. These data are for all producers, not only our sample, and are thus not subject to scaling. Separately, we estimated State income tax revenues based on the approximately \$25 million in employee compensation and \$30 million in nonlabor income, i.e., proprietor's and business owner profits.

Source: Kavet, Rockler and Associates, LLC.

Intermediate inputs are important because their size and geographic production location determine the size of the local indirect economic impact. The greater degree to which intermediates figure as a portion of the total inputs and the degree to which they are purchased in the State, the greater the economic multiplier. With regard to the brewing process itself, we see from Table 3 that the top 20 goods and services inputs account for two-thirds of all intermediate inputs, totaling 37 percent of the 53 percent that intermediates represent of the Vermont total. The largest input, management of companies, represents nearly 8% of total inputs, followed by flour and malt manufacturing, grain farming, electrical power, and glass products. We see that very few inputs dominate the total, and by the time we reach the 20th largest, truck transportation, the percentage of inputs is below 1% of total input.

How different is brewing in Vermont from the rest of the nation? In Table 4, we show the largest differences (positive or negative) comparing the two as a percentage of the U.S. value. At the top of the list, Vermont's use of metal cans and containers is drastically lower than the U.S. rate. Whereas the U.S. brewing industry spends \$0.07 on metal cans of each input dollar, Vermont spends approximately \$0.001 of each input dollar. Canning, although beginning to be used more frequently in Vermont, still represents a minor share of inputs.

Other notable negative deviations with the U.S. industry among "important" inputs (i.e., in the top 20 by percentage) are glass and glass product manufacturing and truck transportation. These figures support the general impression of the Vermont brewing industry's reliance on restaurant, brewpub, and direct sales that involves lower reliance on packaging and distribution. Taken together, Vermont brewers spend 12 percentage points less on packaging and transportation than the typical U.S. brewer.

On the other hand, the positive deviations of Vermont brewing reinforce the notion that the industry faces higher relative production costs owing to small-scale operations. Facilities support services and commercial and industrial machinery and equipment repair/maintenance expenditures are both important and relatively high in Vermont, as is insurance, other foods manufacturing and water/sewage. It may not be only scale which leaves Vermont somewhat disadvantaged, but the prominent role played by food services in the State product mix, which may increase the need for these latter three expenditures. In any event, the brewing and food service process is very different in Vermont - and that is borne out in the survey data.

Table 3
Top 20 Largest Operating Inputs as Percent of Total Intermediate Inputs for Vermont
Breweries, Vermont, 2014

Rank	Sector	Percent of All Inputs
1	Management of companies and enterprises	7.54%
2	Flour milling and malt manufacturing	6.40%
3	Grain farming	3.77%
4	Electric power generation, transmission, and distribution	2.90%
5	Glass and glass product manufacturing	2.04%
6	Other real estate	1.82%
7	Other crop farming	1.50%
8	Natural gas distribution	1.32%
9	Wholesale trade	1.15%
10	Lessors of nonfinancial intangible assets	1.06%
11	Insurance agencies, brokerages, and related activities	0.94%

12	Commercial and industrial machinery and equipment repair and maintenance	0.80%
13	Wet corn milling	0.76%
14	Water, sewage and other systems	0.75%
15	All other miscellaneous manufacturing	0.72%
16	Facilities support services	0.69%
17	All other food manufacturing	0.67%
18	Animal (except poultry) slaughtering, rendering, and processing	0.64%
19	Fishing, hunting and trapping	0.62%
20	Truck transportation	0.61%
	TOTAL TOP 20	36.70%
	REMAINING INDUSTRIES COMBINED	16.52%
	TOTAL	53.21%

Source: Kavet, Rockler and Associates, LLC

Table 4

Top 20 Sectoral Differences in Operating Input Requirements for Combination Brewery, Restaurants U.S.

Rank	Commodity Description	Proportion of Inputs: US	Proportion of Inputs: Vermont	Absolute Difference (Percent)
1	Metal can, box, and other metal container (light gauge) manufacturing	0.07392	0.00110	-6620%
2	Paperboard container manufacturing	0.02580	0.00350	-637%
3	Flavoring syrup and concentrate manufacturing	0.00182	0.00040	-355%
4	Petroleum refineries	0.00416	0.00105	-296%
5	Breweries	0.00288	0.00090	-220%
6	Wholesale trade	0.03610	0.01150	-214%
7	Glass and glass product manufacturing*	0.05736	0.02040	-181%
8	Environmental and other technical consulting services	0.00027	0.00010	-166%
9	Truck transportation*	0.01431	0.00608	-135%
10	Services to buildings and dwellings	0.00262	0.00120	-118%
11	Facilities support services*	0.00005	0.00685	99%
12	Other industrial machinery manufacturing	0.00003	0.00200	98%
13	All other food manufacturing*	0.00023	0.00670	97%
14	All other miscellaneous manufacturing	0.00037	0.00720	95%
15	Insurance agencies, brokerages, and related activities*	0.00059	0.00938	94%
16	Advertising, public relations, and related services	0.00753	0.00390	-93%
17	Paper bag and coated and treated paper manufacturing	0.00036	0.00380	91%
18	Water, sewage and other systems*	0.00130	0.00750	83%
19	Commercial and industrial machinery and equipment repair and maintenance*	0.00198	0.00802	75%

20	Electric power generation, transmission, and distribution	0.00761	0.02900	74%
----	---	---------	---------	-----

* Among the Top 20 Sectors Supplying Inputs to Vermont Brewing.

Source: Kavet, Rockler and Associates, LLC and U.S. Bureau of Economic Analysis

INDIRECT AND INDUCED ECONOMIC IMPACT

Based on our estimated direct economic characteristics of the Vermont brewing industry, with 1,060 jobs and output of \$131.2 million, we estimate the total economic effect of industry operations in 2014 to account for 1,453 jobs, value added of \$89.1 million, and total output of \$182 million, as shown in Table 5. These estimates, made using the IMPLAN model for the State, incorporate the intermediate goods and services inputs quantified from the survey results. For capturing the unique nature of the Vermont brewing industry and in order to reflect its substantial food service component, we constructed a composite industry that is comprised of 2/3 brewing inputs and 1/3 foodservice inputs (i.e., the ratio identified in the survey) for those inputs not specifically quantified in the survey. This new industry also uses composite local area purchase coefficients for the goods and services not specifically identified in the survey, which are applied to the input requirements to estimate Vermont-specific purchasing proportions for each input. For the inputs identified in the survey, we relied on the Vermont proportion given from the survey data to estimate local purchasing behavior.

Table 5
Summary Economic Impact of Vermont Brewing Operation, 2014

IMPACT TYPE	EMPLOYMENT (JOBS)	LABOR INCOME (\$2014)	TOTAL VALUE ADDED (\$2014)	TOTAL OUTPUT (\$2014)
Direct Effect	1,061	32,470,843.5	61,633,409.1	131,247,386.0
Indirect Effect	149	6,600,091.2	10,651,358.5	21,946,619.6
Induced Effect	243	9,517,570.3	16,781,312.5	28,763,217.6
Total Effect	1,453	48,588,505.0	89,066,080.1	181,957,223.2
Total Multiplier	1.37	1.50	1.45	1.39

Source: Kavet, Rockler and Associates, LLC and IMPLAN Model from IMPLAN Group, LLC

Owing to the degree of purchasing leakage involved in State brewing industry, we see that the employment multiplier of 1.37 is moderately low compared to other industries, which fall in a range of 1.2 (electric power generation) to 2.3 (nonmetallic mineral services), ranking it the 309th of 532 industries. Compared to the U.S. brewing industry (not the composite one), the 1.37 multiplier is very low. The U.S. industry has a 9.5 employment multiplier among industries that range from 2.0 (electric power generation) to 74 (household workers), ranking even lower at 447th of 532. The multiplier values of the other measures are close to that for employment, with the labor income slightly higher owing to the States slightly higher than average income earned in the affected industries.

In Table 6, we show the top 10 industries affected by brewing in order of the number of jobs created. After brewing itself, other crop farming, wholesale trade, management, and trucking are leading sectors with close ties to brewing. The other sectors, such as full-service restaurants, hospital, real estate, and individual/family service have closer connections to general consumer demand created by the brewing and supplier labor income, and have ties to brewing only through the labor connection to consumption.

Table 6
Top 10 Affected Sectors by Vermont Brewing Operation, 2014

SECTOR	EMPLOYMENT (JOBS)	LABOR INCOME (\$2014)	TOTAL VALUE ADDED (\$2014)	TOTAL OUTPUT (\$2014)
Craft Brewing	1,064.9	32,590,308.5	61,860,167.5	131,730,264.5
All other crop farming	33.4	386,623.2	739,570.5	1,233,009.3
Wholesale trade	23.3	1,460,565.0	2,793,265.5	4,628,386.1
Full-service restaurants	15.8	331,869.3	377,363.4	743,187.0
Hospitals	15.5	1,078,994.7	1,227,055.9	2,146,198.6
Management of companies and enterprises	13.2	1,187,825.6	1,390,188.4	2,571,604.5
Real estate	13.1	268,192.3	2,030,711.8	2,487,385.7
Truck transportation	12.1	696,033.5	787,132.4	1,821,351.5
Limited-service restaurants	9.5	213,086.1	328,153.2	522,366.1
Individual and family services	8.9	175,801.4	180,504.4	303,124.1

Source: Kavet, Rockler and Associates, LLC and IMPLAN Model from IMPLAN Group, LLC

INVESTMENT

Based on the survey responses, we estimate that total investment in new plant and equipment reached nearly \$10 million for 2014. These investments, recorded by more than one-half of the survey respondents, are predominantly for new construction and renovations to existing structures, altogether totaling \$8 million. The other large investments were for new equipment for brewing, bottling, and packaging, which accounted for slightly more than \$2 million. This figure represents approximately 7% of total output, which places Vermont's brewers well ahead of the general investment rate of United States manufacturing industries, as shown Table 8 for 2013, the most recent

year available.⁷ Only the U.S. Computer and Electronic Product Manufacturing Sector had an investment rate close to that of the Vermont brewing industry. Because of this high investment volume, we expect that industry output will continue to grow at a comparatively rapid rate.

Table 7
2014 Investment

TYPE	AMOUNT (\$2014)
Construction, New & Renovation	\$8,006,300
Equipment (Brewing, bottling, packaging)	\$2,091,261
TOTAL	\$10,097,561

Source: Kavet, Rockler and Associates, LLC.

Table 8
Investment as a Share of Total Output, United States Manufacturing Industries, 2014

Industry	Investment Share of Output (%)
Food manufacturing	2.1%
Beverage and tobacco product manufacturing	2.7%
Textile mills	3.4%
Textile product mills	2.0%
Apparel manufacturing	2.7%
Leather and allied product manufacturing	1.2%
Wood product manufacturing	3.5%
Paper manufacturing	3.9%
Printing and related support activities	2.7%
Petroleum and coal products manufacturing	2.4%
Chemical manufacturing	2.9%

⁷ Vermont data on 2013 investment and total output are largely suppressed at the detail level shown in Table 8. The only exceptions are for food products, with an investment share of total output of 2.3%, fabricated metal products at 4.4% and machinery manufacturing at 1.7%.

Plastics and rubber products manufacturing	3.4%
Nonmetallic mineral product manufacturing	4.2%
Primary metal manufacturing	3.0%
Fabricated metal product manufacturing	3.3%
Machinery manufacturing	2.6%
Computer and electronic product manufacturing	6.2%
Electrical equipment, appliance, and component manufacturing	2.2%
Transportation equipment manufacturing	3.0%
Furniture and related product manufacturing	1.6%
Miscellaneous manufacturing	2.7%

Source: U.S. Bureau of the Census. 2015. Annual Survey of Manufactures, 2013. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ASM_2013_31GS101&prodType=table

We have estimated the total economic impact of the \$10 million investment made by Vermont brewers using the IMPLAN model. As shown in Table 9, total output grows by \$16.6 million and there are 123 new jobs, mostly in the construction industry. We show the total impact of combined operations and investment in Table 10. We see direct employment of 1,139, indirect employment of 165, and induced employment of 272, with a total of 1,576 jobs. In terms of the output, the direct output of \$141 forms the basis of total output after accounting for indirect and induced effects of \$198.6 million.

Table 9
Summary Economic Impact of Vermont Brewing Investment, 2014

IMPACT TYPE	EMPLOYMENT (JOBS)	LABOR INCOME (\$2014)	TOTAL VALUE ADDED (\$2014)	TOTAL OUTPUT (\$2014)
Direct Effect	78	\$3,880,958.1	\$3,702,848.3	\$10,517,288.6
Indirect Effect	17	\$844,896.8	\$1,335,622.9	\$2,606,455.3
Induced Effect	28	\$1,151,450.5	\$2,030,874.3	\$3,496,053.7
Total Effect	123	\$5,877,305	\$7,069,346	\$16,619,798

Source: Kavet, Rockler and Associates, LLC and IMPLAN Model from IMPLAN Group, LLC

Table 10

Summary Economic Impact of Vermont Brewing Operations and Investment, 2014				
IMPACT TYPE	EMPLOYMENT (JOBS)	LABOR INCOME (\$2014)	TOTAL VALUE ADDED (\$2014)	TOTAL OUTPUT (\$2014)
Direct Effect	1,139	\$ 36,351,802	\$ 65,336,257	\$ 141,764,675
Indirect Effect	165	\$ 7,444,988	\$ 11,986,981	\$ 24,553,075
Induced Effect	272	\$ 10,669,021	\$ 18,812,187	\$ 32,259,271
Total Effect	1,576	\$ 54,465,810	\$ 96,135,426	\$ 198,577,021

Source: Kavet, Rockler and Associates, LLC and IMPLAN Model from IMPLAN Group, LLC

TRAVEL AND TOURISM IMPACT

Our survey results indicate that approximately 706,000 visitors were drawn to the 21 responding sample of breweries during 2014 and that of these, 510,000 visits were made by out-of-State residents. If we scale these to a total for all breweries, the total visitors would number 1.6 million of which 1.2 million would be out-of-State. These figures are in-line with other studies of brewery visitors. For example, the Stonebridge Research Group⁸ estimated that New York State's 2013 figure of visitors to its 207 breweries numbered 3.6 million with expenditures of \$450 million. Although the method by which the expenditures were estimated is not given in the Stonebridge study, if we apply conservative assumptions regarding brewery-related tourism in Vermont, we speculate that nearly \$51 million may be directly attributable to brewery related tourism expenditures without considering any multiplier effects.

We base our assumptions on expenditures rates from the 2013 "Benchmark Study of the Impact of Visitor Spending on the Vermont Economy: 2013"⁹, which estimates that each overnight visitor to Vermont spends \$494 in total during their stay (estimated, in turn, to be about 5 nights per person) for lodging, food, entertainment, fuel, etc. Of this figure, 84 percent is not for the restaurant and bar-expenditures we have already estimated. Thus, based on our estimates, if only 10 percent of 1.2 million out-of-State brewery visitors behaved like the average overnight visitor to the State, those 120,000 visitors would generate \$50 million. This visitor figure represents approximately 8 percent of the total number of overnight lodging visitors and does not include expenditures that might be derived from second-home owner, campers, or those staying with friends and/or family.

If a similar 10 percent figure is applied to in-State visitors, 40,000 from the total 400,000 per year would have traveled for brewery related visitation and this would generate \$1.0 million at a \$24 per day rate in expenditures after deducting for restaurant/bar expenditures that are included by the Vermont Department of Tourism. Combined, this figure is \$51 million for all visitors. This direct impact total can be used to derive a total impact figure of approximately \$82 million, using the Vermont travel and tourism output multiplier of 1.6 from IMPLAN.

\$82 million is a conservative figure and would yield a contribution to State GDP of approximately \$40 million. Combined with the brewing contribution to GDP of nearly \$90 million (see Table 5 for total value added), the \$130 million total contribution to gross product is about ½ of 1 percent of State GDP, which is \$30 billion. This is a significant impact for an industry that has 46 establishments and 1,060 employees.

⁸ Stonebridge Research Group. April 2015. "The Economic Impact of Craft Beer on the New York Economy, 2013." St. Helena, CA. https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/NYCraft_Beer_2013_Impact_Study_FINAL4.15.15.pdf

⁹ Vermont Department of Tourism and Marketing. 2015. "Benchmark Study of the Impact of Visitor Spending on the Vermont Economy: 2013." <http://accd.vermont.gov/sites/accd/files/Documents/travel/vermont-tourism-benchmark-study-2013.pdf>

Nevertheless, as conservative a figure as it is, it is based on speculation as regards the share of visitation primarily interested in visiting breweries. It is very likely that brewery visitors have multiple reasons for travel to Vermont, and in so much as they can combine their brewery visits with summer and winter sports, autumn foliage viewing, and other attractions, it will always be difficult to identify which sector of the State economy deserves credit for travel and tourism expenditures. In view of its direct impact and growth rate, it would appear worthwhile to include brewery visits in the bi-annual State tourism survey that enumerates visits to the State by purpose.

QUALITATIVE RESULTS FROM THE SURVEY

The survey offered us the opportunity to examine three issues of a qualitative nature with respect to Vermont brewing:

1. The importance of the "Vermont Brand" or image to the promotion of a brewery's products.
2. The role of the Vermont Brewers Association passport program in generating interest in beer tourism and Vermont brewery products.
3. The degree of participation of VBA members in tourism marketing and development.

We discuss the opinions expressed concerning these topics below.

THE "VERMONT BRAND" OR IMAGE

When it comes to brewing, the so-called "Vermont Brand," important to the promotion of a number of Vermont products, is regarded as either "very important" or "critically important" by nearly 2/3 of the survey respondents. Without specifying what the image is, most respondents thought that a Vermont production location added to the strength of their branding, with one respondent noting very clearly that location is the key attribute that sets their products apart from those outside Vermont. In view of the importance of the image to the brewing industry, this topic should certainly be revisited when it comes to the next travel and tourism surveys.

THE VBA PASSPORT PROGRAM

Support for the VBA passport is overwhelming among survey respondents. At present, the VBA passport identifies 33 Vermont breweries that can stamp a certified document that can be redeemed for several levels of rewards, depending on the number of breweries visited. With the exception of breweries that are not open to

visitors, all but one respondent was certain that the program was beneficial. The one uncertain respondent was just not clear as to the number of visitors that could be attributed to the program. There were several mentions of a desire to see the passport automated or made electronic, presumably as a phone app, but there was no clear suggestion as to the types of information that would be collected by such means or how it would be different than the paper, pen, and rubber stamp approach now in use.

As a means of creating interest in brewery travel and brewery visitation, the Passport program has been a success. As of October, 2015, 1,060 passports have been redeemed for VBA merchandise and of these 200 were from within Vermont and 860 were from out-of-State. Note that these figures are very close to the ratio of in-State to out-of-State visitors we found from the survey data. In order to quantify the value of the program, it would be worthwhile gathering per passport visitation expenditures for comparison to all visitors. Combined with the numbers of stamps issued, the program revenue could then be estimated and evaluated against the cost of such revenue.

VBA MEMBER PARTICIPATION IN TOURISM AND MARKETING PROGRAMS

When asked whether VBA members participate in brewery tourism promotion programs, one-fourth clearly stated that they were not involved and among the rest, a number noted that they participated in the VBA passport program, participate in various festivals, and were tied-in with a local "beer trail" market programs. Several noted joint-promotion programs with Vermont ski areas and local advertising. Nevertheless, it is somewhat surprising that no other formal marketing programs outside the VBA passport are evident. We note that nearby New York State has established six regional trail networks that promoted on the New York Brewers Association's website and publicized by travel writers. Perhaps the reluctance to form new marketing program groups is a reflection of independent nature of Vermont brewers, but in so much as the Passport program has been a major success, expanding beyond that activity could achieve similar support.

SUMMARY

This study provides unique local survey-based estimates of the impact of the Vermont brewery industry on the Vermont economy. We have shown that Vermont's industry is not just a small version of the U.S. one, dominated as the latter is by a handful of very large producers. The industry has achieved rapid growth in recent

years and the current level of investment at nearly 8 percent of the value of annual output, portends high growth in the short-run.

Vermont's brewing industry numbers 46 establishments of which we were able to survey 21. The industry accounts for 1,060 direct jobs in a combined brewery and food service sector. From the data gathered, we estimated that Vermont brewers generate \$131 million in direct output (approximately \$124,000 per worker), and after taking into account interindustry transactions needed to produce that output, and industry investment, total brewing related output accounts for \$199 million. The total impact includes approximately 1,573 jobs and \$55 million in total labor income.

Vermont's brewing industry is characterized by less reliance on transportation, warehousing, and packaging, but higher labor intensity, and greater reliance on services to operate its relative small-scale breweries. Economies of scale on the order U.S. breweries are not apparent in the State. Because a high proportion of input products are produced outside Vermont, the State's indirect multiplier component is relatively small. In the future, as the scale of the State industry as whole expands, it may be possible to "capture" a larger of the imported goods and services, keeping more of the industry's output dollar inside the State.

The added tourism draw exerted by the craft brewing industry in Vermont, though difficult to measure precisely, is also an important and growing component of the Vermont economy and both benefits from, and reinforces, the "Vermont Brand." The economic benefits to the State of continued growth in this, and related support industries, are significant.

APPENDIX
A-1:
QUESTIONNAIRE

Vermont Brewers Association 2014 Questionnaire

**VERMONT BREWERS ASSOCIATION ECONOMIC IMPACT STUDY, APRIL
2015**

The questionnaire has nine sections that concern your business operations, including items such as your employment, revenues, expenditures, and other characteristics. In this section, we ask for basic information about your brewing-related business.

* 1. In what year did you start this business?

2. What form of business organization is your brewery?

- Sole Proprietorship
- Partnership, S-Corporation, Limited Liability Company (LLC)
- Corporation
- Other

3. Do the business owners work in the brewery?

- Yes, full-time (30 hours per week or more)
- Yes, part-time (fewer than 30 hours per week)
- No (SKIP TO Q. 4)

3a. If "Yes" in Q. 3, how many owners work in the brewery? (Please enter a number)

* 4. How many full-time employees (30 or more hours per week) did you have at the end of 2014? (Do not count owners.)

* 5. How many part-time employees (fewer than 30 hours per week) did you have at the end of 2014? (Do not count owners.)

6. What percentage of your employees are Vermont residents?

* 7. What was the annual payroll for this business in 2014?

8. What percentage on top of the payroll (Q.7) do you pay for employees fringes and benefits to your employees? (Please enter a number greater than or equal to zero.)

* 9. What was the 2014 annual revenue for total brewing product sales? (Please enter a dollar amount. Do not include sales of other items, such as food, souvenirs, etc.)

9a. If you were in business in 2013, by how much did your business revenue change between 2013 and 2014? Please enter a numerical percent growth rate (negative if the case.)

10. Below, we list a number of activities/services that might be offered at your brewing location. For each one that is offered, enter the 2014 annual \$ revenue. If an activity or service was offered, but there was no revenue, enter a zero. Otherwise, if not offered, please leave blank:

a. Public beer tastings

b. Snacks

c. Limited pub-style food service

d. Full-service restaurant

e. Brewery-related merchandise

f. Brewery tours

g. Retail beer sales for off-premises consumption

h. Other merchandise sales

i. Other activities not listed above

11. For the items listed below, please indicate the 2014 annual expenditures and the percentage of that value from Vermont suppliers. If you did not purchase a particular item, leave box empty.

Example: You purchased \$5,000 of unmalted barley, half of which came from a Vermont wholesaler. Enter "\$5,000;50% VT"

a. Unmalted grain and/or grain products

b. Malted grain and/or malt products (e.g., extracts, dried malt, etc.)

c. Hops and hops extract

d. Yeast

e. Sugars and/or other sweeteners (e.g., honey, dextrose, maltose, etc.)

f. Flavorings, flavor extracts, spices

g. Glass containers (such as bottles, growlers)

h. Metal containers

i. Paperboard and/or cardboard bottle carriers, boxes, paper labels

j. Products from other brewers, such as hops, yeast, services not covered above

k. Other brewing inputs (Please add description to \$ and % figures.)

12. Please enter your 2014 annual \$ expenditures for the following services. (Note: Some questions as for quantities.) If no expenditures, please enter 0.

a. Electricity from a utility:

b. On-site supplied electricity (Please estimate monthly kilowatt hours)

c. Natural gas and/or propane from a utility or distributor:

d. Water from a public utility:

e. Self-supplied water (Please estimate monthly quantity)

f. Wastewater/sewage disposal:

g. Solid waste disposal

13. Do you compost any brewery waste or make spent grain available?

- Compost
- Make spent grain available
- Both compost and make spent grain available
- Neither

14. How much did you pay in 2014 to each of the following?

a. Local property taxes

b. Other local (non-property) taxes and fees

State taxes and fees

Federal taxes and fees

15. In 2014, if you purchased any of services listed below, please enter the annual \$ expenditure and % from Vermont suppliers. If you did not purchase a particular item, leave box empty.

Example: In 2014, you spent \$2,000 for general liability insurance, all of which went to a Vermont insurance agent. Enter "\$2,000;100% VT" on option o.

a. Maintenance and repair of brewing equipment

b. Other maintenance and repairs (for buildings, grounds, office equipment, etc.)

c. Trucking transportation (both in- and outbound materials and/or finished product)

d. Rail transportation (both in- and outbound materials and/or finished product)

e. Other transportation (both in- and outbound materials and/or finished product)

f. Parcel or small goods shipment (both in- and outbound materials and/or finished product)

g. Private automobile transportation

h. Warehousing (not company owned)

i. Wholesaling services (purchased inputs)

j. Wholesale distribution services (finished product sales)

k. Laboratory services

l. Contract cleaning services

m. Fees, interest, service charges to banks or other financial institutions

n. Real estate rentals and/or leasing

- o. Insurance (all types except health which is covered in Q.8)
- p. Professional services, e.g., legal, accounting, bookkeeping, mangement, engineering
- q. Print advertising
- r. Radio/TV advertising
- s. Web advertising
- t. In-store promotions
- u. Promotional goods
- v. Product exchange (e.g., swapping goods for advertising and promotion)

16. In 2014, did you purchase inputs for non-brewing products and/or services.

Example: You purchased \$4,500 in food products for snacks from a local wholesaler and \$2,500 of t-shirts from Ohio for gift sales? Enter "\$4,500; 100% VT" on line b.for prepared food and beverages, and \$2,500; 0% VT" on line g. for other and indicate that it was for T-shirts.

- a. Agricultural products used in food preparation, such as fresh vegetables, fruit, meats, etc.?
- b. Prepared food and beverages?
- c. Food service equipment?
- d. Restaurant furniture and fixtures?
- e. Non-food restaurant supplies?
- f. Paper and packaging products?

g. Other? Please describe, enter \$ amount and % from Vermont suppliers.

17. Did you invest in your facility or acquire equipment in 2014? If so, please tell us what type of investments you made and the \$ amount of each different type.

18. Do you operate a visitor center or tasting area at your brewery? If yes, please tell us how many visitors you had in 2014 (an estimate will help). If no, please skip to Q. 19.

19. If you had visitors to see your brewery and sample your products, do you know what proportion are from outside of Vermont?

Please provide your best estimate of the percentage of visitors from outside of Vermont.

20. Do you ship your product(s) directly outside Vermont (not via a wholesaler)? What percentage of the your total sales does this represent. Please provide an estimate of the percentage of your production going outside Vermont.

21. How important is the Vermont connection to your prouducts' success? Does it add a little or a great deal to customers' perceptions of quality? Please check the box which best

describes how much a Vermont connection matters to your business.

- Not at all.
- Maybe a little.
- It matters, but is not critical.
- It matters very much.
- It is essential.

22. Do you participate in the any travel-related promotion of your brewery and/or products? Are you part of any established program regarding travel and tourism specifically connected to beer and brewing? Please describe the importance of this activity to your business.

23. Do you participate in the Vermont Brewers' Association Visitor Passport Program? If so, has it been beneficial to your business? If not, do you have specific suggestions you have about operating this reward program? Would you want to see changes in the current program or a completely different one? Please tell you whether you benefit from this program and why or why not.

This concludes the 2014 Vermont Brewery Association Economic Impact Survey. If you have any remaining questions or comments, please contact Nicolas Rockler of Kavet, Rockler and Associates by

**phone, at 802-492-1199 or by email at nrockler@kavetrockler.com.
Thank you for your participation.**

eNrtfWlz20iS9nx2
