Brewers Association Economic Impact Study

(Published 7/1/2020)

Methodology Overview

The data for this study are primarily based on two national surveys conducted by the Brewers Association: the annual Beer Industry Production Survey (BIPS) and a revenue benchmarking survey conducted in March of 2021 as well as additional government and market data. The data obtained in these surveys were then entered into an IMPLAN software input-output analysis in order to examine the broader ripples of craft brewers in the national and state economies. See the final page for changes in methodology from earlier iterations of this study.

Scope

The study measures the contribution of craft brewers. An American craft brewer is a small and independent brewer.

> **Small:** Annual production of 6 million barrels of beer or less (approximately 3 percent of U.S. annual sales). Beer production is attributed to the rules of alternating proprietorships.
>
> **Independent:** Less than 25% of the craft brewery is owned or controlled (or equivalent economic interest) by an alcoholic beverage industry member who is not themselves a craft brewer.
>
> **Brewer:** Has a TTB Brewer's Notice and makes beer.

Brewers that do not fall under this definition were not included in this study. In addition, this study does not include non-beer beverage alcohol products of craft brewers like cider and FMBs (though does include other non-beer products such as food).

Outputs

The economic contribution of the craft brewing industry was calculated using an input-output analysis that breaks economic output into three parts: direct, indirect, and induced impacts.

The direct impact looks at the industry itself, including craft breweries, craft beer wholesalers, and retailers that sell craft beer. The data for this portion was gathered via two surveys: BIPS and BOBS. BIPS, an annual survey conducted by the Brewers Association, seeks to obtain production data from the entire population of American breweries. Once this production data is compiled, it is turned into revenue using data from a survey conducted in March of 2021, which looked at revenue per barrel for both distributed and onsite beer sales. Revenue for non-beer was taking from a previous benchmarking.

This survey gathers data on revenue for breweries, broken down by brewery characteristics, such as size and type. Revenues for breweries that were not a part of BOBS were estimated using a revenue model based on these empirical foundations.

To calculate the rest of the direct value chain, estimates of the national and state retail markets for craft beer were calculated using pricing, sales volume, and channel-specific share data across both on- and off-premise channels from a variety of sources, including the Bureau of Labor Statistics, the IRI Group, CGA-Nielsen, the Beer Institute, and the Brewers Association. Previous iterations used the margins approach within IMPLAN. Because this is unavailable in IMPLAN's online platform, this iteration used manual margining, in line with best practices published by IMPLAN.[1] Using a margins approach, value was subsequently assigned to both wholesalers and retailers using data from industry and government sources.

In addition, the value of non-beer, such as food sales at brewpub restaurants, was assigned to a separate direct channel (to account for different multipliers inherent in brewing versus other services).[2] These revenues were calculated in a similar fashion to beer revenues, using a combination of BIPS and BOBS.

Once these direct activities had been defined, the indirect and induced portions of the model were calculated using an input-output model from the Minnesota IMPLAN Group. First developed by the U.S. Forest Service, this model looks at the interconnections between sectors of the economy, tracing flows of dollars and employment both nationally and at the state level. These interactions are based on industry-specific multipliers derived from government data and the econometric calculations of the model.[3]

The indirect economic contribution measures the connections between direct industry participants (breweries, wholesalers, and retailers) and their suppliers, including raw materials like glass and malted barley, as well as building materials, marketing firms, and brewing equipment. Induced impacts are the final connections in the economy as workers in the industry use their wages to purchase additional goods and services.

Given the specific regional nature of the multipliers used to calculate the indirect and induced figures, the total national contribution reported is an aggregate of the state reports.[4]

---

[1] https://implanhelp.zendesk.com/hc/en-us/articles/360034608333-Manually-Margining-Bill-of-Goods
[2] IMPLAN Sector 509 (Full-service restaurants)
[3] Learn more at: www.implan.com
[4] As a check, a national model produced a similar, though slightly larger estimate of craft's economic impact. State models also looked at the impact of the rest of the national craft brewing industry on each state's economy through the multi-regional analysis option in IMPLAN (MRIO model). In this way, state figures should be seen as reflecting the economic contribution of the national craft beer industry in each state, rather than the contribution solely of each state's individual craft brewers. Because of the much larger value of direct contributions, states with larger "domestic" production tend to have larger proportional impacts than states that rely more on indirect/induced contributions.

Model Year

The 2020 models were built using IMPLAN's 2020-Q3 input-output tables. National tests using 2019 input-output tables show only small differences in final output (~1%) versus 2020-Q3 model values. Although there is greater uncertainty and more preliminary data in using the 2020-Q3 tables, given the dramatic shifts in economic activity during the pandemic, on the whole, it was decided that using these tables would be more accurate, particularly on induced spending impacts from consumer spending patterns.

Changes from 2012 and 2014

Although the methodology used in this study was broadly comparable to the methodology used in 2012 and 2014 there were several updates from earlier iterations of the Brewers Association Economic Impact Studies. The scope of the study was shifted slightly to align with changes to the craft brewer definition made the BA's board of directors in early 2014.[5] The 2016-2020 studies are comparable in definition to the 2014 study, but both will have differences relative to 2012.

Secondly, it uses updated IMPLAN software and data. These updates included the creation of different sectors, creating small differences in the channels used in the earlier studies. Given the similarity between sectors used, it is unlikely that these changes had a large impact on the overall findings. In addition, the updates involved various changes to the multipliers used internally in the software, creating a different ratio of direct to indirect/induced output and employment.

Next, the 2016-2020 studies use an updated retail value model. This model was updated for two primary reasons. The first is that better on-premise data was available to create a more accurate state-by-state estimate of the on-premise market. Because of this change, share estimates changed in ways that reflect not only market changes (largely universally positive) but also the elimination of previous model biases (both positive and negative depending on the state). Because the total retail value is fixed based on the national total, this led to some retail estimates going down relative to the 2014 numbers, even where market growth may have occurred. It means the 2016-20 models presented are likely more accurate, but that the changes between 2014 and 2016-20 may not always be perfect indicators of market changes. The second change was an update in how at the brewery sales revenues were calculated. Whereas in the past these values were calculated solely based on BIPS and BOBS data, rather than extrapolating in states with low survey coverage, this iteration the model integrated TTB premises use data in states with low survey coverage.

Fourth, the 2016-18 models altered the indirect impacts in key raw material supplier states. Although there are challenges in modifying the IMPLAN estimates, it is clear that these are outweighed by the cons of simply relying on the BEA tables that underlie the IMPLAN model. Those tables generally assume brewery production that looks like large brewer production, which differs in several key areas from small brewer production, and so estimates a very different set of interactions. In 2016-2017, the only

[5] See the following page for more on these changes: https://www.brewersassociation.org/press-releases/brewers-association-board-meeting-produces-strategic-changes/

updates I made were in the three primary hop growing states, where it has become clear that the model is woefully underestimating craft brewers' impacts. Using the USDA-NASS crop values for those states, adjusted for both exports and craft brewer share, I shifted up the indirect impact of the national industry on each state. These impacts are modest, but I think more accurately capture the importance of the craft brewing industry on the hop industry in those states. Starting with the 2018 numbers, I am also making updates in the grain farming impact, as IMPLAN assumes a supply chain similar to the overall brewing industry, and so overestimates the impact of craft brewing in corn growing regions and underestimates the impact in barley growing regions. Unlike the hops updates, these changes simply shift impacts across the states, and are not additional output in the model. As with the hops updates, these shifts rely on data from USDA-NASS as well as craft brewer benchmarking.[6]

Finally, the 2016-20 studies and the 2014 study reflect a methodological change in the inputs-outputs related the retail sector versus the 2012 study. One of the limitations of the margins approach in IMPLAN is that all value must be assigned to off-premise retailing, which as a lower employment ratio per volume (or value) sold (see footnote 1 for more). For the overall beer industry, this is less problematic, as 80%+ of all beer volume is sold via off-premise channels. In contrast, craft has a much higher on-premise volume percentage. In the 2012 iteration, this was corrected for by creating a separate on-premise channel to account for the additional employment created (this was estimated based on various secondary models and data on draught percentage by state). Although it is possible that this additional channel increased the accuracy of employment in the state and national models, in weighing the pros and cons of this additional channel, it was decided to drop these additional calculations and let IMPLAN calculate total retail employment based simply on the margins approach for the brewing industry (as well as the separate non-beer channel). This has the effect of lowering the overall employment calculated by the model and is one reason that employment estimates grew much more slowly than output estimates between 2012 and 2014. This method was constant between the 2014 and 2016-2020 studies and so should have no effect.

[6] The grain farming sector impacts where shifted out of Iowa, Illinois, Nebraska, and Minnesota and into Idaho, Montana, and North Dakota.