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Customer Patronage, Satisfaction, and Operation Breadth Across Closed and Still-Operating Breweries in Georgia

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Abstract
Following the peak of the craft beer "revolution" in the United States, many breweries across the nation have closed for business. As with other industries, three often-suggested reasons for closure are difficulties acquiring a customer base, relatively low customer satisfaction (i.e., relatively low product quality), and business expansion. Using a unique sample of over 100 Georgia breweries, of which about 29 percent were unsuccessful, we examine differentials. Nine total measures are investigated, three each in the categories of customer patronage, customer satisfaction, and operation breadth. We find that closed and still-operating breweries are not statistically different in terms of operation breadth, on average, but that closed breweries experienced lower customer satisfaction and slower customer patronage.

Keywords: Brewery, beer, closed business, customer satisfaction, customer patronage, operation breadth
JEL Classifications: L21, L25, L66

Introduction
Conjecture abounds regarding the reasons for Georgia brewery closures, with legislation and changes in consumer drinking habits cited as contributing factors (Townsend, 2024). Breweries can sell directly to consumers onsite since Georgia Senate Bill 85 went into effect September 1, 2017, yet some brewers believe recent closures are due to old laws that prohibit direct distribution to retailers (Kousouris, 2025). Georgia legalized brewpubs in 1995, but was the third to last state to do so with the final two states, Mississippi and Montana, legalizing brewpubs in 1999 (Elzinga et al., 2015). Thus, perhaps Georgia's lag in legislation to expand the brewing industry is of note. Bad business decisions by brewery owners such as taking on too much debt, as evidenced by defaulted loan payments, brought the end for some (Fletcher, 2024). But what about the impact of Georgia brewery customers? As with any business, low customer patronage and/or satisfaction can also cause a brewery to close its doors.

Although craft[3] beer sales have experienced a downturn nationwide in the U.S., headlines such as 'Is a craft beer-pocalypse coming for Atlanta?' demonstrate a particularly dismal outlook for Georgia (Zickgraf, 2024). In 2024, Georgia ranked 18th in the nation for the

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[3] A craft brewery is generally defined by size and ownership (Routon et al., 2016). Specifically, craft breweries produce a maximum of six million 31-gallon barrels annually and have less than 25 percent commercial ownership control, with commercial defined as a non-craft beverage alcohol industry member (Brewers Association, 2026).

absolute number of craft breweries (with 190), but 43rd for breweries per capita (2.4 breweries per 100,000 adults over the age of 21) (Brewers Association, 2026). Georgia's per capita ranking may contribute to attention-grabbing headlines and strong reactions to brewery closures, given the impact of a closure has a relatively more pronounced effect on the individual consumer.

For two consecutive years, The Atlanta Journal-Constitution ran nearly identical headlines: '2023 was an up and down year for Georgia breweries' and 'The Georgia brewery scene saw ups and downs in 2024' (Townsend, 2023; 2025). Consistent with these headlines, each article detailed multiple brewery closures in contrast to openings and success stories. The reasons for closing shared by owners vary, but typically and perhaps unsurprisingly, involve financial problems. One owner stated that inability to collect payment from a distributor led to closure (Zusel, 2023b). Rising costs were cited by another (Stepzinski, 2025). Yet another provided a vague comment about revenues not reaching a sustainable level (Zusel, 2023a). Defaulting on loans, as disclosed in legal filings rather than explicitly shared, was another reason (Fletcher, 2024). Other owners declined to provide a reason, seeming to prefer that their brewery quietly slip away (Wakim, 2023; Butler, 2024).

While brewery counts can vary depending on the institution calculating the measure (Kunce, 2025), news articles and the closures themselves make it clear that some Georgia breweries are succeeding while others are struggling. For this reason, we examine important differentials across successful and unsuccessful breweries. Our examination spans three areas that may be related to closure: customer patronage, customer satisfaction, and operation breadth. In each category, we investigate three measures for a total of nine focus variables. We make use of a publicly available source of brewery data. These data do not allow for causal analysis, but understanding the average differences between successful and unsuccessful breweries may still shed light on the reasons for closure and provide motivation for future, causal research. The following section details our sample and available variables.

Data

Data for this analysis were collected from the geosocial networking application, or "app," Untappd, a purposeful misspelling of the word untapped. Founded in 2010, Untappd has appeared on lists of the "best" or "top" apps since at least 2016 (e.g., Fitzpatrick et al., 2016). The app allows individual users to log or "check-in" and rate the beers they drink and engage with friends through features such as toasting check-ins and messaging. The beer ratings appear on a user's profile page and appear in aggregate on brewery profile pages. Breweries may use their profile page to provide information that might attract and engage customers, such as a brief company history and operating hours. Breweries can also view statistics on how consumers rate their products and brewery, and interact with individual users through toasting check-ins. The app is available for free to individual users. Most of the Untappd data used in this study are available to be viewed for free on the Untappd website without downloading the app or creating an account. The single exception is the number of beers produced for closed breweries, which requires a user to be logged-in to view.

A unique sample of 107 Georgia breweries was created using current and former members of The Georgia Craft Brewer's Guild and searching news articles to identify additional closed breweries. This selection procedure was used to avoid authors' biases such as selecting breweries based on proximity or personal familiarity. Using current and former Guild members along with news articles provides additional assurance that the breweries in the sample are legal, legitimate operations. The sampled breweries are craft breweries. A partial exception is Terrapin Beer Co., which was founded in 2002 and lost craft brewery status from 2016 to 2024, but regained this status in 2024 through legal structuring (Countryman, 2024). The U.S. state of Georgia was chosen due to the authors' familiarity with the Georgia brewing industry from past research, allowing some of the data from Untappd to be easily confirmed. To increase comparability, given that app data are live and constantly changing as users are checking-in, all of the Untappd data were gathered on July 30, 2025 during an hour and a half time period by taking screenshots of brewery profile pages. The exception is number of beers produced for closed breweries which is a static statistic that was frozen at the time of brewery closure. All 31 closed breweries (or about 29 percent of the sample) in the sample stopped operating prior to July 30, 2025. The screenshots also provide a historical record of the hand-collected data. In the interest of data disclosure, Figure 1 provides a graphical representation of when the sampled breweries opened to the public.

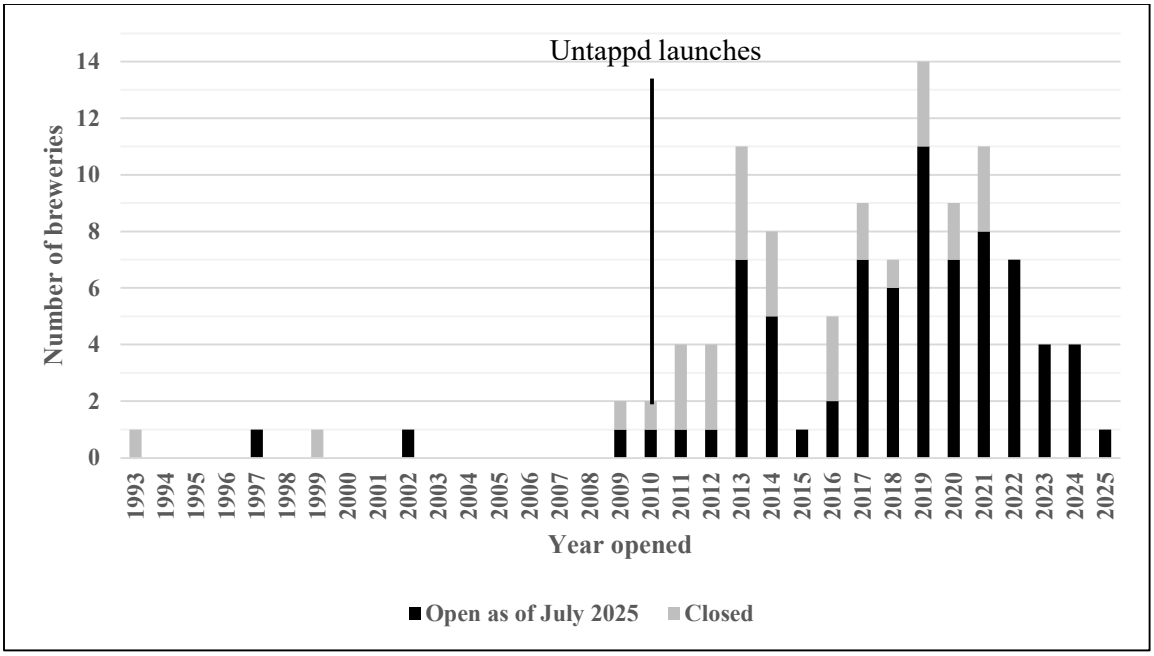

Figure 1. Opening years of sampled breweries

Variables collected include the brewery's name; location (city); number of physical locations; additional classification as a brewpub (a brewery with a restaurant component onsite where beer is sold alongside food); number of different beers produced; number of unique users who have logged one or more of a brewery's beers; the average rating across all of the brewery's beers (on a 0-5 increasing scale); the number of ratings submitted (as it is possible to log a beer without giving a rating); awards given by Untappd based on user feedback; total check-ins (logs), whether a rating was submitted or not; and the number of

users who have "liked" the brewery. These variables are all the metrics that are available through the free individual user view of Untappd, with the exception of level of award (i.e. gold, silver, bronze). Due to limited sample size of each award level, we do not include the levels in our main analysis, but we do include those findings as an additional analysis in the Appendix.

To make them comparable across breweries, many of these variables were annualized by dividing values by the number of years the brewery was on the app before closure, or has been on the app, for still open breweries. After reviewing the variables, we grouped the measures conceptually. The conceptual groupings are as follows: three measures of customer patronage (users per year, ratings per year, and check-ins per year), three measures of customer satisfaction (average rating, likes per year, and awards per year), and three measures of operation breadth (number of physical locations, brewpub classification, and beers per year). Table 1 presents descriptive statistics for these nine measures across the full sample and additional attributes, including whether or not a brewery is located in Atlanta, miles from the geographic center of Atlanta, brewery age, if the brewery opened before Untappd launched, number of years on the app, and year that the brewery opened.

Table 1. Summary statistics

Variable	Mean	Median	STD	Min.	Max.
Customer patronage					
Users per year	2,354.585	916.38	4,049.272	22.3	23,280.3
Ratings per year	6,279.277	2,198.73	11,861.056	50.0	73,014.9
Check-ins per year	8,439.726	2,722.00	16,937.393	60.7	104,782.6
Customer satisfaction					
Average rating	3.763	3.76	0.133	3.5	4.2
Likes per year	138.386	25.50	350.415	0.0	2,462.3
Awards per year	0.630	0.00	1.591	0.0	11.3
Operation breadth					
Locations	1.308	1.00	0.926	1.0	6.0
Brewpub	0.150	0.00	0.358	0.0	1.0
Beers per year	30.780	26.28	18.904	1.8	91.6
Matching covariates					
Atlanta brewery	0.159	0.00	0.367	0.0	1.0
Miles from Atlanta	63.520	32.30	76.186	1.6	284.0
Brewery age (years)	7.757	7.00	5.248	1.0	29.0
Opened before app	0.075	0.00	0.264	0.0	1.0
Years on the app	7.252	7.00	3.910	1.0	15.0

Notes: n = 107. STD = standard deviation. "Per year" refers to years registered on the app Untappd, the data source. The year the brewery opened is also used as a matching covariate. This variable has a minimum, maximum, and mean of 1993, 2025, and 2017, respectively.

Analysis

Mean Differences

We begin our comparison of closed versus open breweries with F-tests for the equality of two variances (H_0: $\sigma_1^2 = \sigma_2^2$), to examine whether the subsample of closed breweries was more homogenous than the subsample of open breweries across the nine measures of interest, along with distance from Atlanta and brewery age. Results are shown in Table 2. There are no statistically significant differences for the three measures of operation breadth. The same is true for average beer ratings, where the two groups are found to be equally variable. However, for the remaining two measures of customer satisfaction and all three measures of customer patronage, there was noticeably less diversity among closed breweries than among open breweries. Regarding distance from Atlanta, closed breweries show less variance. Closed breweries show more variance for age, but the difference is only weakly significant.

Table 2. Variances across open and closed breweries

Variable	Variance		Diff.	*p*-value
	Closed	Open		
Customer patronage				
Users per year	4,216,020	21,341,420	-17,125,400	0.0000
Ratings per year	24,967,572	186,093,233	-161,125,661	0.0000
Check-ins per year	45,643,283	381,846,791	-336,203,508	0.0000
Customer satisfaction				
Average rating	0.0158	0.0161	-0.0003	0.4944
Likes per year	32,270	160,587	-128,317	0.0000
Awards per year	0.038	3.373	-3.335	0.0000
Operation breadth				
Locations	0.673	0.929	-0.256	0.1634
Brewpub	0.161	0.116	0.046	0.1257
Beers per year	305.6	374.3	-68.6	0.2722
Additional attributes				
Miles from Atlanta	2,670.9	6,759.6	-4,088.7	0.0058
Brewery age (years)	36.8	22.8	14.0	0.0974

Notes: n = 107. n_{closed} = 31. n_{open} = 76. Diff. (difference) is the Closed variance minus the Open variance. "Per year" refers to years registered on the app Untappd, the data source. The *p*-values come from F-tests of equality for each set of variances.

Two-mean hypothesis tests for the same measures are presented in Table 3. Specifically, one-tailed Welch's *t*-tests (e.g., H_0: $\mu_1 \geq \mu_2$) were performed. In only two cases (brewpub) is the closed brewery mean larger than the open brewery mean, leading to the opposite one-

tailed test being performed (H_0: $\mu_1 \leq \mu_2$). As shown in Table 2, variances are largely unequal, so the tests in Table 3 are Welch's unequal variances *t*-tests. Demonstrated by the *p*-values in this table, the average closed brewery is not statistically different from the average open brewery across all three measures of operation breadth, considering the conventional statistical significance level of 5 percent (*p*-value < 0.05). However, two measures (ratings and check-ins per year) indicate that closed breweries have lower average customer patronage, while two different measures (average rating and awards per year) indicate they also have lower average customer satisfaction. On average, unsuccessful breweries were about 36 miles closer to Atlanta and roughly 2 years older.

Table 3. Means across open and closed breweries

Variable	Mean		Diff.	*p*-value
	Closed	Open		(1-tail)
Customer patronage				
Users per year	1,854	2,559	-705	0.1386
Ratings per year	4,104	7,167	-3,063	0.0463
Check-ins per year	5,409	9,676	-4,267	0.0486
Customer satisfaction				
Average rating	3.695	3.790	-0.096	0.0004
Likes per year	129.16	142.15	-12.98	0.4088
Awards per year	0.062	0.862	-0.801	0.0002
Operation breadth				
Locations	1.161	1.368	-0.207	0.1325
Brewpub	0.194	0.132	0.062	0.2268
Beers per year	26.940	32.347	-5.407	0.0824
Additional attributes				
Miles from Atlanta	38.122	73.883	-35.761	0.0041
Brewery age (years)	9.323	7.118	2.205	0.0386

Notes: n = 107. n_{closed} = 31. n_{open} = 76. Diff. (difference) is the Closed mean minus the Open mean. "Per year" refers to years registered on the app Untappd, the data source. The *p*-values come from Welch's unequal variances *t*-tests for two means. The exception is Brewpub, where a test of independent proportions was used.

Propensity Score Matching

Of course, none of the mean differences in Table 3 hold other factors constant. Neither the relatively small sample size nor available variables allow for a true causal analysis. However, reexamining mean differences with a degree of control may prove useful in better understanding the differences between closed and open breweries. To that end, we turn to propensity score matching (PSM) (Rosenbaum and Rubin, 1983; 1985). Specifically, we follow McCaffrey et al. (2004) and Ridgeway (2006) in our choice of propensity scoring

method and use the R® software package *twang* (McCaffrey et al., 2013; Ridgeway et al., 2020). Compared to the hypothesis tests in the preceding subsection, PSM has the advantage of creating a synthetic "control group" that more closely mirrors the "treatment group's" characteristics. Compared to the common alternative of ordinary least squares (OLS) regression, PSM has several advantages, including: dimensionality reduction (and lower risk of overfitting, especially with smaller sample sizes); it does not assume linear relationships; more generally, it is a nonparametric approach; and separation of study design and analysis (the researcher does not examine the outcome or "treatment effect" until adequate balance is achieved, while OLS is more commonly thought to invite model 'tweaking' until statistical significance is obtained). We direct the interested reader to Ridgeway (2006) for a detailed discussion of the PSM method used, though we summarize it here.

Let $b = 1$ denote the subsample of breweries that closed and $b = 0$ those that remain in operation. This indicator for unsuccessful breweries acts as the "treatment" variable in our PSM analysis. Let $\boldsymbol{x}$ denote a set of matching covariates, characteristics of the breweries across the two groups that will be held constant through the matching process. The matching covariates used here include the age of the brewery (as of data collection for open breweries and at the time of closure for closed breweries); years registered on Untappd; an indicator for breweries that were open before Untappd was available; the calendar year the brewery opened; an indicator for breweries headquartered in Atlanta, the capital and by far most populous city in Georgia; and the distance (in miles) between the brewery and the geographic center of the city[4]. This set of covariates helps ensure the estimated differentials are not biased by any relevant form of timing or geography. A useful feature of the *twang* package is that it also captures non-linearities and interactions among the matching covariates.

The goal is to weight still-open breweries in a way that, when the weights are assigned, there are no differences across the two groups in these regards. In statistical terms, we want to weight the joint distribution of still-open breweries, $f(\boldsymbol{x}|b = 0)$, so it would be identical to the joint distribution of closed breweries, $f(\boldsymbol{x}|b = 1)$, with regard to the matching covariates.

This goal can be described by the equation,

$$f(\boldsymbol{x}|b = 1) = w(\boldsymbol{x})f(\boldsymbol{x}|b = 0), \tag{1}$$

where $w(\boldsymbol{x})$ represents the weights. Solving for $w(\boldsymbol{x})$ and applying Bayes theorem to the two conditional distributions of $\boldsymbol{x}$ results in,

$$w(\boldsymbol{x}) = K\frac{f(b = 1|\boldsymbol{x})}{1 - f(b = 1|\boldsymbol{x})}, \tag{2}$$

[4] According to tourist agencies and nonprofit community development organizations, Woodruff Park (91 Peachtree St. NW) is considered the "center" of Atlanta because it sits at the exact geographic and historic crossroads where the city's modern financial, academic, and government districts converge (e.g., Atlanta Downtown, 2026).

where K is a constant independent of $\boldsymbol{x}$ that will cancel in the outcomes analysis. Still-open breweries with similar traits to closed ones will therefore be "upweighted" and those with dissimilar traits are "downweighted." The weights, $w(\boldsymbol{x})$, are calculated using an iterative process. When calculating PSM weights within the *twang* package, the analyst may specify the number of decision trees (total number of sequential iterations the algorithm will run), the interaction depth (the level of variable interactions, and therefore the complexity and size of the individual decision trees), and "shrinkage" (the step size taken by the algorithm as it iteratively minimizes prediction errors)[5]. The analyst may also choose among four stopping rules, the criteria used to determine the optimal number of iterations[6]. Lastly, *twang* can calculate weights designed to capture the average treatment effect (ATE) or the average treatment effect on the treated (ATT). Here, we use ATT weights. Detailed discussions of these generated weights may be found in Wooldridge (2002), Hirano and Imbens (2001), and McCaffrey et al. (2004). After construction of the weights, they are used in an outcomes analysis of the following form. The standardized mean difference, *SMD*, between the average outcome, y, in each group is measured by,

$$SMD = \frac{\sum_{i=1}^{n} b_i y_i}{\sum_{i=1}^{n} b_i} - \frac{\sum_{i=1}^{n} (1 - b_i) w(\boldsymbol{x}_i) y_i}{\sum_{i=1}^{n} (1 - b_i) w(\boldsymbol{x}_i)}. \tag{3}$$

Within this approach, standard errors are robust and account for unequal weights, heteroskedasticity, and small sample sizes.

Finally, we note a potentially important feature of our sample. Three of the sampled breweries, all of which belong to the still-open ($b = 0$) group, are large enough that they could be considered outliers during the sample period. These are SweetWater Brewing Company, Creature Comforts Brewing Company, and Terrapin Beer Company. Within the sample, these breweries have several noticeably large values. Also, anecdotally, these three breweries are long-time staples of the Georgia craft brewing scene and could arguably be considered very successful due to their size and longevity. For ease of reference, we name these breweries the "Big 3," and perform our full PSM procedure twice, with them included and then excluded.[7]

The key results from our propensity score matching procedures are presented in Table 4, and we first discuss the results when the Big 3 are included. Regarding customer patronage, all three differentials greatly increased in magnitude and are statistically

[5] Here, we use *twang*'s default values of 10,000, 3, and 0.01 for the number of decision trees, interaction depth, and shrinkage, respectively. The package authors chose these default values to be intentionally conservative and highly robust (McCaffrey et al., 2013; Ridgeway et al., 2024).

[6] These are (*i*) absolute standardized mean difference (ASMD) – average; (*ii*) ASMD – maximum; (*iii*) Kolmogorov-Smirnov Statistic (KS) – average; and (*iv*) KS – maximum. We direct the interested reader to McCaffrey et al. (2013) and Ridgeway et al. (2020) for more information on these stopping rules. Here, we use (*iv*), as it is the most strict and conservative stopping rule among the four (McCaffrey et al., 2013; Ridgeway et al., 2020), though note we find similar results across all four rules.

[7] The F-tests in Table 2 and the Welch's *t*-tests in Table 3 were also performed with the Big 3 excluded. This did not change the statistical significance of those findings. Thus, those additional results are available from the authors upon request but are not presented here for brevity.

significant at the 95 percent level. Breweries that closed were receiving about 2,300 fewer users per year, 8,000 fewer ratings per year, and about 11,000 fewer check-ins per year, on average. Regarding customer satisfaction, closed breweries' beers were rated slightly lower (by about 0.1 points on a 5-point scale), were receiving about 115 fewer "likes" per year, and about 1 less award per year on the app. The estimated differential for "likes" is not statistically significant, while the other two are significant at the 99 percent level. Regarding operation breadth, closed breweries are again found to be statistically similar to open breweries. None of the three differentials are statistically significant at the conventional 95 percent level.

When the Big 3 are excluded, only the two measures of customer satisfaction (average rating and awards per year) remain significant at the 95 percent level or above. Indeed, they remain significant at the 99 percent level and the estimated differentials slightly increased after excluding the 3 largest, most successful breweries. Combining the two sets of results, these data appear to show that closed breweries experienced lower customer satisfaction, may have experienced lower patronage (if one believes large, successful breweries should be considered), but did not have different operational breadth than successful breweries in terms of number of locations, brewpub status, and number of beers per year, on average. It is also noteworthy that average differentials in customer satisfaction are small. This may reasonably lead one to suspect that the more common reasons for closure lay beyond the categories of customer satisfaction, patronage, and operation breadth. Alternatively, this result could be interpreted to imply that one's beer only need be slightly better than the competition to maintain a successful business. This may prove more true in states like Georgia with a small number of breweries per capita. Conversely, while not always statistically significant at conventional levels, the estimated differentials for patronage are noticeably large. Even when excluding the largest breweries, all three measured differentials in this category are in the thousands of customers per year, with two of those significant at the (much less used) 90 percent level. We suspect that, if a larger sample of Georgia breweries was available, average differences across patronage would prove statistically significant at conventional levels even with the biggest and most successful breweries excluded.

Table 4. PSM results

Outcome	Big 3 included (n = 107)				Big 3 excluded (n = 104)			
	SMD	*SE*	*t*	*p*	*SMD*	*SE*	*t*	*p*
Customer patronage								
Users/year	-2,324	1,092	-2.13	0.0357	-1,459	981	-1.49	0.1399
Ratings/year	-8,000	3,270	-2.45	0.0161	-5,298	2,857	-1.85	0.0666
Check ins/year	-10,969	4,522	-2.43	0.0170	-6,989	3,828	-1.83	0.0707
Customer satisfaction								
Avg. rating	-0.096	0.029	-3.35	0.0011	-0.101	0.029	-3.44	0.0008
Likes/year	-115.750	91.870	-1.26	0.2105	-21.040	63.710	-0.33	0.7418
Awards/year	-1.151	0.426	-2.70	0.0081	-1.175	0.438	-2.68	0.0086
Operation breadth								
Locations	-0.634	0.378	-1.68	0.0963	-0.692	0.392	-1.77	0.0804
Brewpub	0.094	0.081	1.16	0.2480	0.082	0.087	0.94	0.3482
Beers/year	-6.888	4.925	-1.40	0.1650	-6.952	5.210	-1.33	0.1850

Notes: *SMD* is the standardized mean difference between closed and open breweries. *SE* = (robust) standard error. "Big 3" refer to the three largest breweries in the state during the sample period: Sweetwater, Creature Comforts, and Terrapin.

For the interested reader, additional results are presented in an Appendix which we summarize here. Figure A1 is a graphical display of an additional measure from Untappd identified as 'monthly check-ins' which is based on the most recent four weeks, so in this case, the preceding four weeks from July 30, 2025. Accordingly, it does not include breweries that closed before that period, so in the figure, we only display data from the subsample of open breweries. This subsample had an average of 328 check-ins during that period, with a maximum of 3,523. We believe these statistics support the idea that Untappd remained actively used by brewery customers at the time of data collection. Table A1 displays an analysis of means for the specific types of Untappd awards: gold, silver, and bronze. Such awards are given each year for the top three beers within a specific beer style, at both the state and country levels. Still-operating breweries earned more awards than closed breweries in all three categories, but unlike our primary awards variable, these variables are not annualized and should be interpreted with caution[8]. Table A2 presents the key results from OLS regressions that are otherwise analogous to our PSM analysis, that is, where the matching covariates are used as control variables and the key independent variable is an indicator for closed breweries. Finally, Table A3 displays balance metrics for the PSM analysis. Balance was achieved with both sets of weights.

[8] Prior research has found no significant impact on the likelihood of closure for breweries winning GABF medals (Kunce, 2024), though those awards are granted by professional beer judges, not customers. It has also been shown that place-based characteristics are important for GABF awards (Kunce, 2023). An examination of the relationships between place-based characteristics and customer judged awards may be a worthy avenue of future research.

This study is not without limitations. First, by design, it is specific to one U.S. state, Georgia, and our analysis relies on a relatively small sample of breweries. Second, there of course exist many other measures of customer patronage, customer satisfaction, and operation breadth that are unavailable from this data source. Third, there are also more reasons than these three a brewery might close (e.g., rising costs or over-saturation of the market). Fourth, the data here do not allow for causal analysis and thus none was attempted. Notably, PSM does not address any confounding from unobservables. Finally, Untappd data may be considered voluntary survey data, and therefore likely come with the well-known issues of this data type: self-selection bias, nonresponse bias, unrepresentativeness, and other sampling errors. We advise the reader to remain cognizant of these limitations when interpreting our findings.

Conclusions

Based on analysis of publicly available Untappd data, we find that closed breweries have lower customer satisfaction and likely patronage compared to still-operating breweries. However, it is important to note the measures of customer satisfaction are only slightly lower. For example, the beers of closed breweries are only slightly behind the average ratings of open breweries. Patronage, the estimated number of customers, seems to be another key differential, with closed breweries having far fewer customers and purchases per customer. This is especially true when the most successful breweries are retained in the sample. In other words, the beer of unsuccessful breweries was not "horrible," but those businesses still did not attract as many customers.

These findings may indicate several areas of caution for breweries related to number of customers and their number of purchases. Market trends toward brewing higher ABV beer[9] could have a downside in that customers may purchase fewer beers during each visit because they reach their tolerable limit of consumption sooner, and this trend may be at odds with emerging consumer demand for lower ABV beverages (Anderson, 2023). Customer awareness and access are relevant to attracting customers, so breweries likely need to consider marketing efforts and hours of operation. Market saturation is important too. While opening breweries within close proximity can allow for opportunities such as beer crawls and de facto travel destination brewery districts, at some point customer cannibalization becomes an issue. Finally, while the Georgia craft brewing industry is undeniably facing challenges, our analysis supports that craft brewery customers still exist, though breweries need to focus on efforts to attract customers in addition to brewing great beer.

[9] For example, in early 2026, Untappd released an in-app badge that users can earn for drinking Quad IPAs. This follows a 2018 Triple IPA badge release.

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Appendix

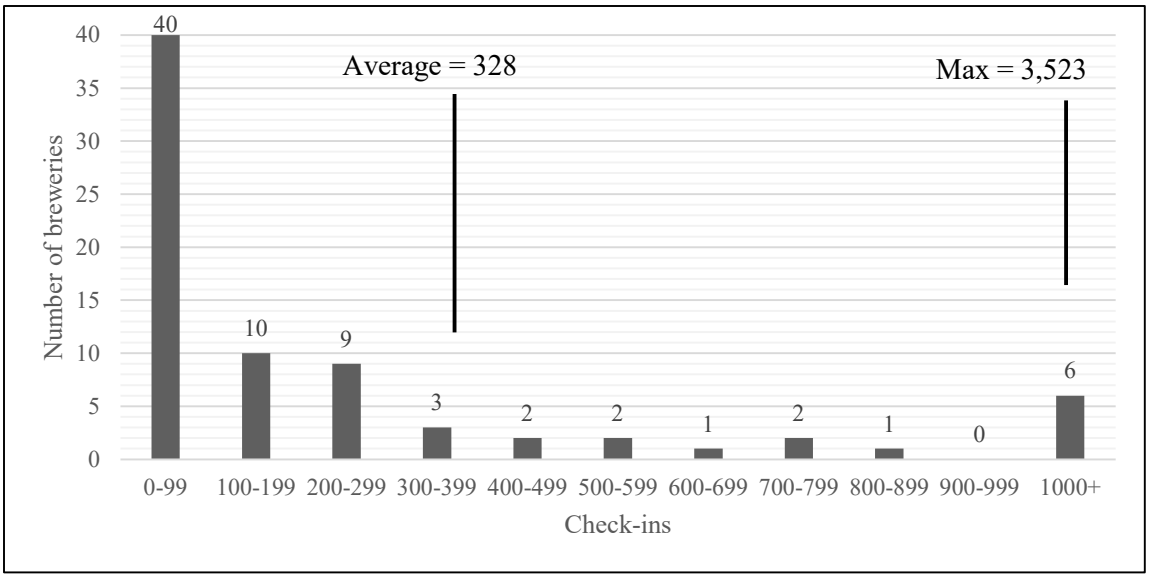

Figure A1. Distribution of check-ins on Untappd, monthly check-ins 4 weeks ending 7/30/2025

Table A1. Specific Untappd awards

Medals	Mean		Diff.	*p*-value
	Closed	Open		1-tail
Gold	0.194	1.961	-1.767	0.0010
Silver	0.129	2.039	-1.910	0.0000
Bronze	0.258	1.908	-1.650	0.0000

Notes: $n = 107$. $n_{closed} = 31$. $n_{open} = 76$. Diff. (difference) is the Closed mean minus the Open mean.

Table A2. OLS results

Outcome	*Coef.*	*SE*	*p*-value	R^2
Big 3 included (n = 107)				
Customer patronage				
Users per year	-2,192.11	708.86	0.0026	0.4296
Ratings per year	-7,433.95	2,104.67	0.0006	0.4136
Check-ins per year	-10,471.82	3,017.22	0.0008	0.4011
Customer satisfaction				
Average rating	-0.093	0.026	0.0006	0.2721
Likes per year	-134.924	61.647	0.0312	0.4478
Awards per year	-0.952	0.344	0.0067	0.1226
Operation breadth				
Locations	-0.417	0.197	0.0363	0.1965
Brewpub	0.066	0.082	0.4252	0.0876
Beers per year	-7.323	4.217	0.0854	0.0598
Big 3 excluded (n = 104)				
Customer patronage				
Users per year	-1,165.86	585.52	0.0492	0.3361
Ratings per year	-4,224.34	1,629.49	0.0110	0.3179
Check-ins per year	-5,617.44	2,267.37	0.0149	0.2990
Customer satisfaction				
Average rating	-0.093	0.027	0.0009	0.2722
Likes per year	-17.338	37.206	0.6422	0.2800
Awards per year	-1.038	0.356	0.0044	0.1248
Operation breadth				
Locations	-0.520	0.200	0.0108	0.2063
Brewpub	0.065	0.081	0.4251	0.0886
Beers per year	-7.802	4.384	0.0782	0.0594

Notes: Results here come from OLS models of the form $y_i = \alpha + \beta \text{closed}_i + \gamma \mathbf{X}_i + \varepsilon_i$ where y_i is the outcome listed in this table; α an intercept; closed_i and indicator for closed breweries, with β its corresponding parameter (presented as *Coef.* here); $\mathbf{X}_i$ a vector of control variables (see the Analysis section for the list), with γ its corresponding vector of parameters; and ε_i an error term. *SE* = standard error. "Per year" refers to years registered on the app Untappd, the data source. The "Big 3" are the state's 3 largest breweries across the sample period, which have noticeably different Untappd values: Terrapin, SweetWater, and Creature Comforts.

Table A3. Balance metrics

Matching covariate	Standardized effect size	
	Big 3 included	Big 3 excluded
Atlanta brewery	-0.006	-0.001
Miles from Atlanta	-0.030	-0.017
Brewery age (years)	0.074	0.041
Opened before app	-0.015	0.037
Years on the app	-0.085	-0.062
Year opened	-0.084	-0.061

Notes: A variable is generally considered "well-balanced" if the absolute value of its (weighted) standardized effect size is less an 0.10. There were 2 sets of weights used in this analysis, one for the full sample (n = 107) and one where the 3 largest breweries were excluded (n = 104).