

US MicroBrew Analysis

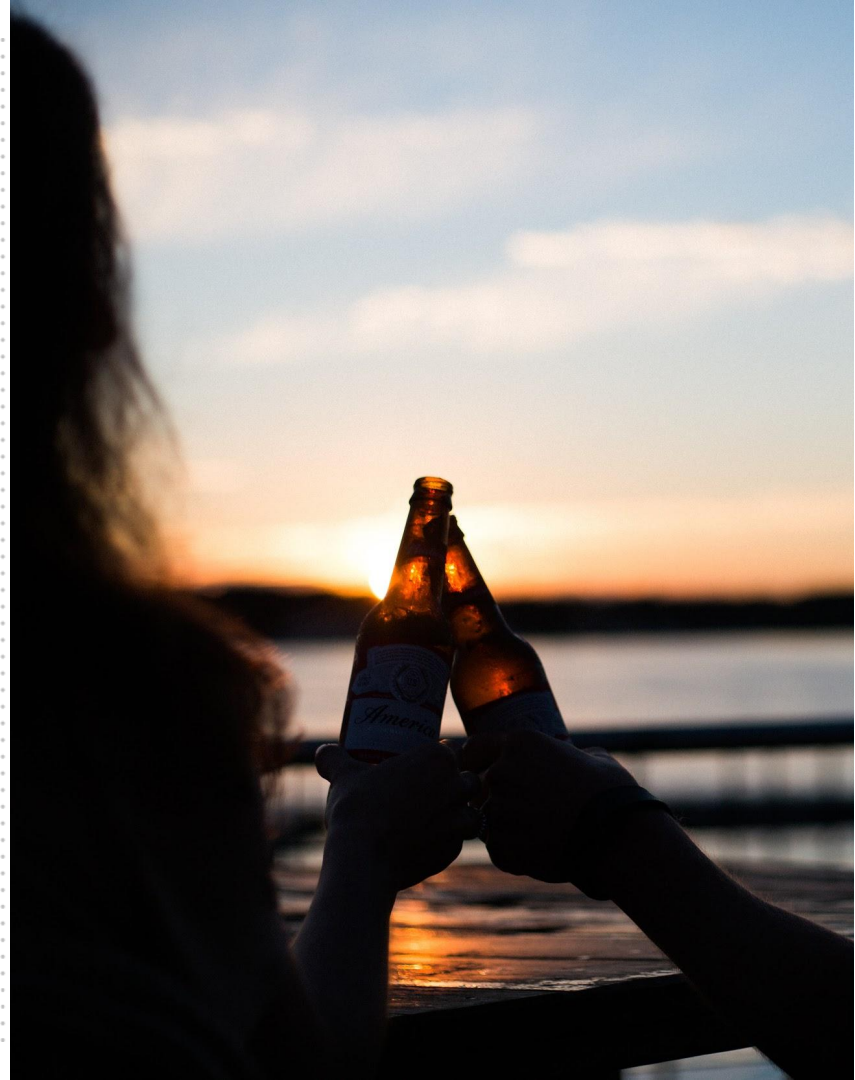
June 2019

Clark & Lang Consulting

ABInBev

Outline

- **Business Question and Situation Analysis**
- **Data Overview and Cleaning**
- **Breweries by the State**
- **ABV and IBU by State**
- **Max ABV and IBU**
- **Summary of ABV data**
- **ABV and IBU relationship**
- **Conclusion and Implications**



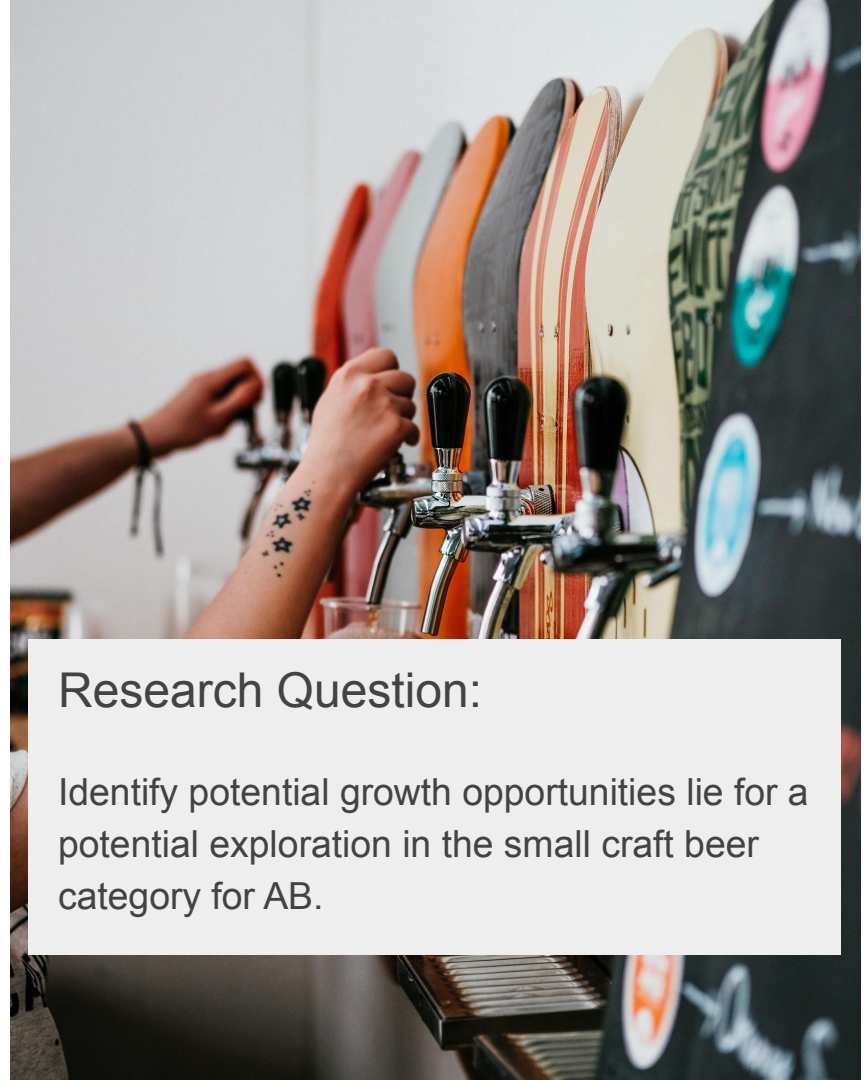
Top IBU & ABV Beers

The craft brewing industry grew from 12% volume of total beer share in the US to 13% in 2018, and is now a \$27 billion dollar industry. With the total beer sales down in 2018, it is important for AB Inbev to look further into this growth market for an opportunity to expand.

Before doing so, Clark & Lang Consulting were employed to review market data to understand trends with how small micro-brews are staking claim to US territory.

Research Question:

Identify potential growth opportunities lie for a potential exploration in the small craft beer category for AB.



Data Overview & Data Cleaning

Data Available:

Beers.csv - dataset with 2,410 different beers in the US with scores on IBU and ABV levels

Breweries.csv - dataset of 559 different breweries in the US with information on the location

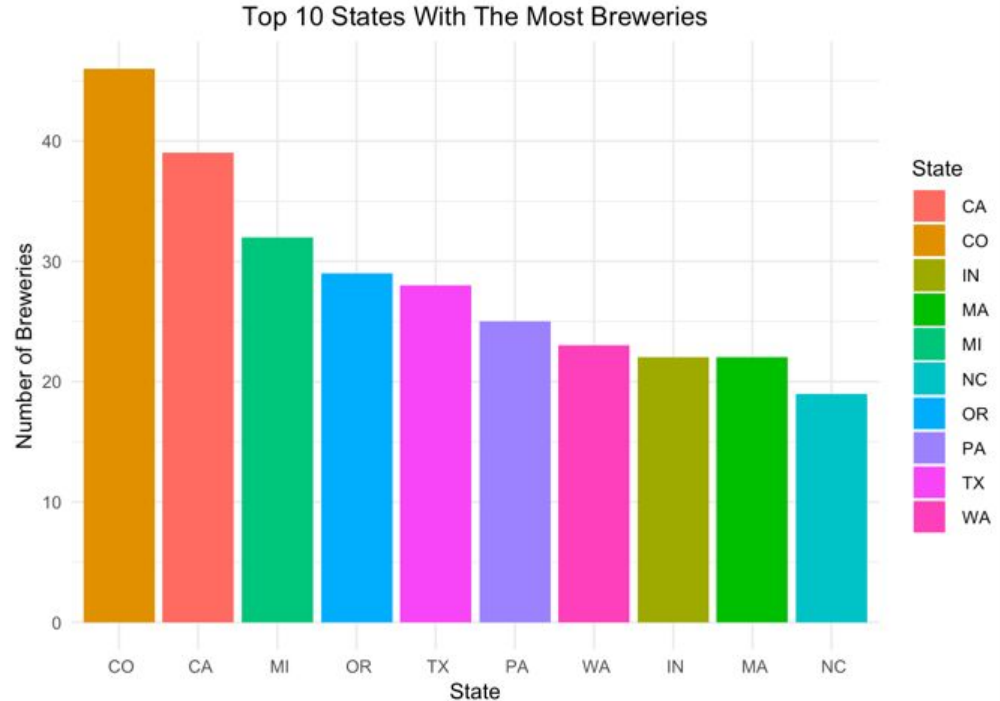
Data Cleaning:

- Remove NA's from data and re-assign duplicate breweries to count as one dataset
- Shortcoming: Incomplete brewery reported data
 - 42% of beers were removed from IBU analysis
 - 3% of beers were removed from ABV analysis



Top & Bottom 10 States by Number of Breweries

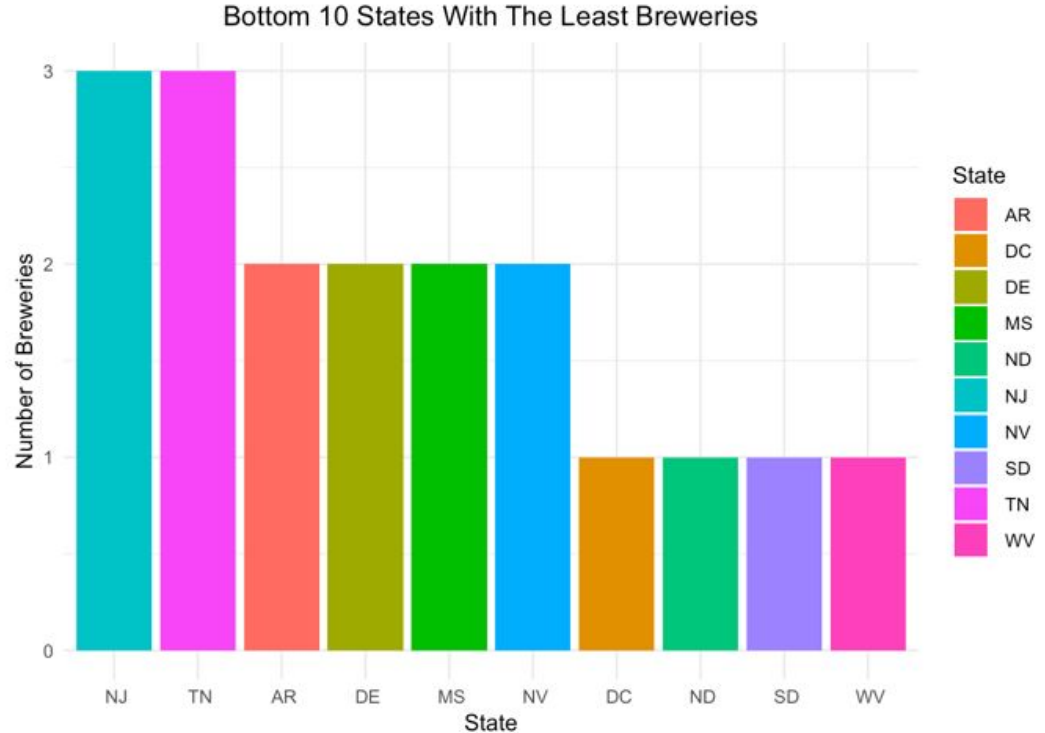
- Range of Breweries per state start at over 45 down to 1 in WV, SD, ND and DC
- Colorado and California are the only two states with more than 30 Breweries in the State
- Since Colorado is at over 100k square miles, that would mean there's a brewery every 2,200 square miles



See Appendix for full 50 States + DC counts

Top & Bottom 10 States by Number of Breweries

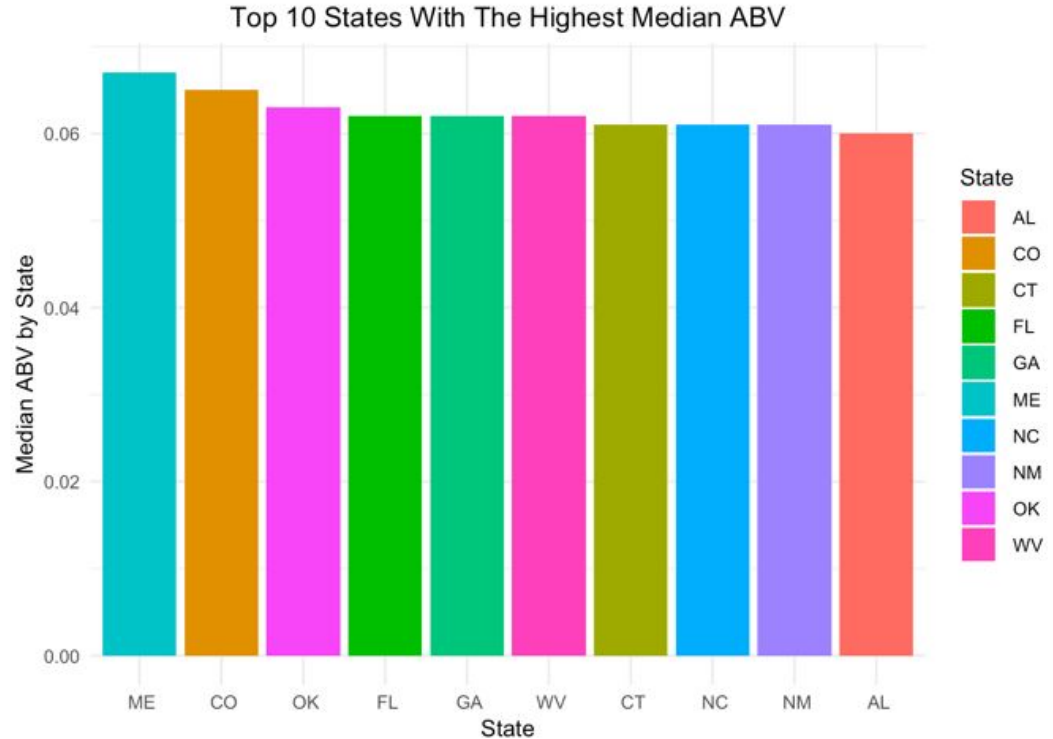
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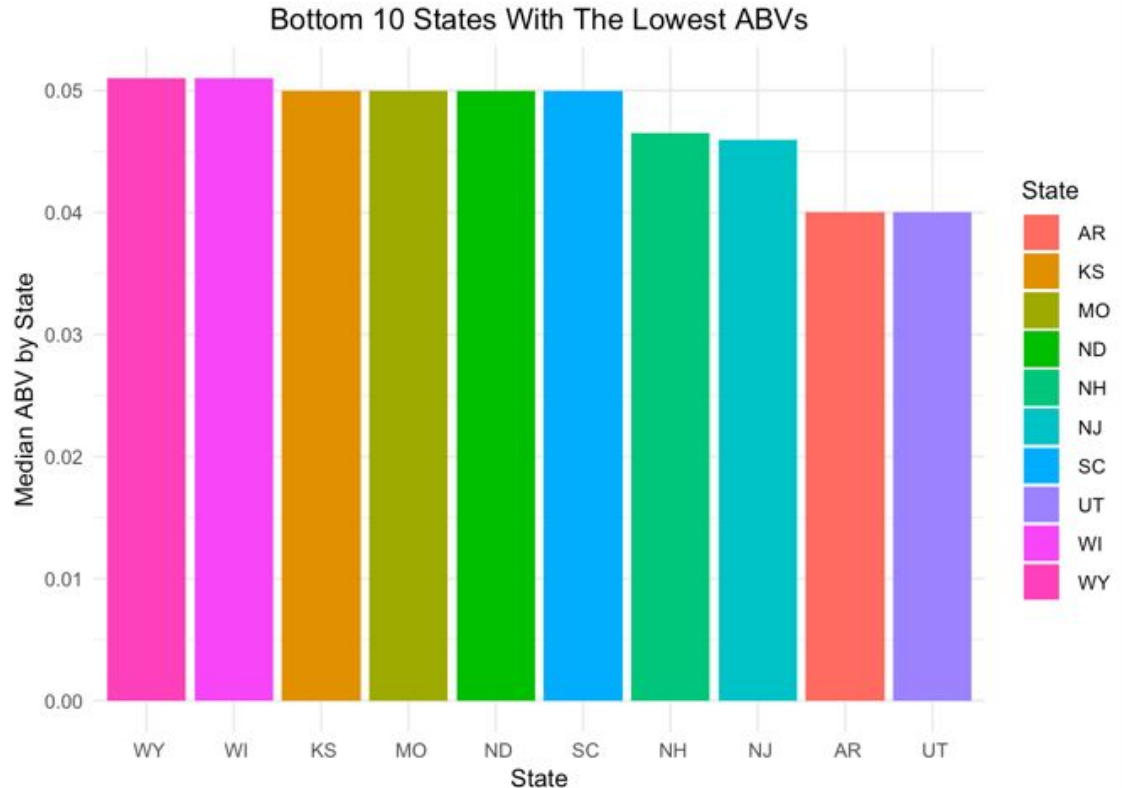
ABV by State

- Maine is the highest with the largest alcohol by volume of 6.75%, followed by Colorado and Oklahoma and Florida at over 6%.
- Utah and Arkansas has the lowest median at just around 4%.
- This is not surprising considering the low ABV levels regulated by the government by Utah at the time of the data being published (<https://www.sltrib.com/news/politics/2019/03/27/guv-signs-off-so-utahs/>).



ABV by State

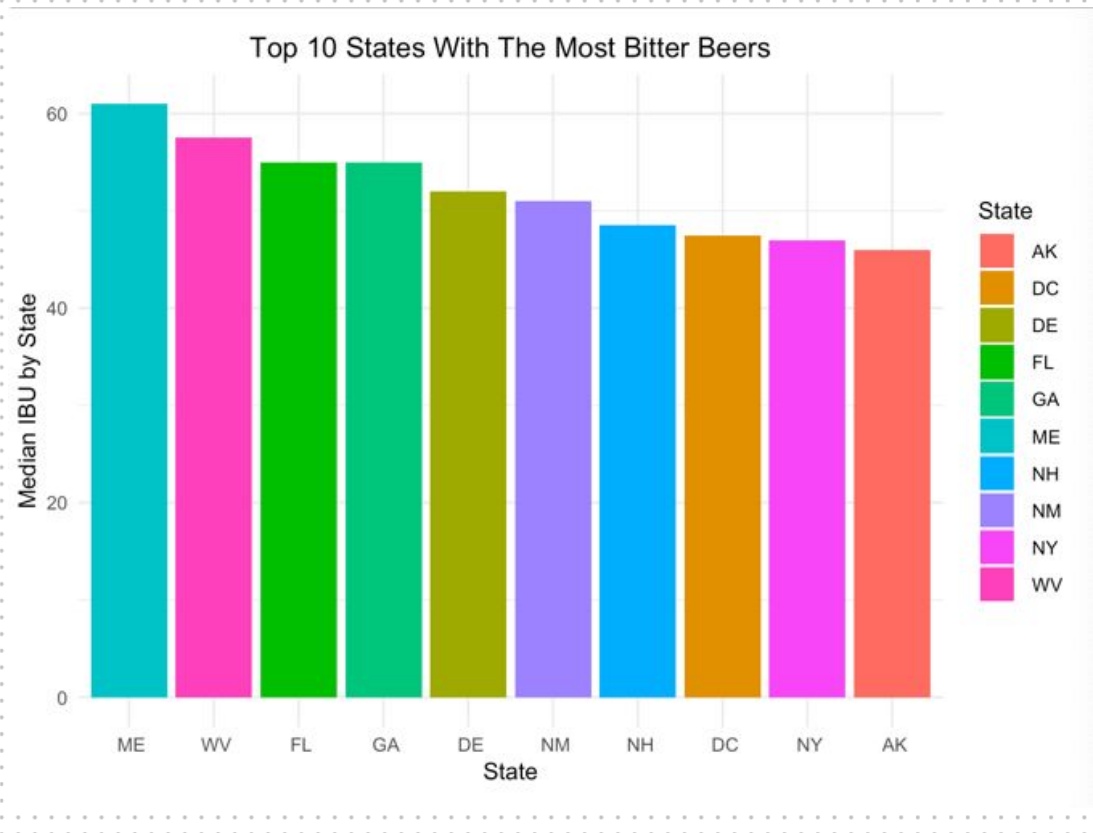
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Bitter Beer by State

Looking at bitterness, we can see that Maine is the by-far leader in bitterness among breweries, followed by West Virginia.

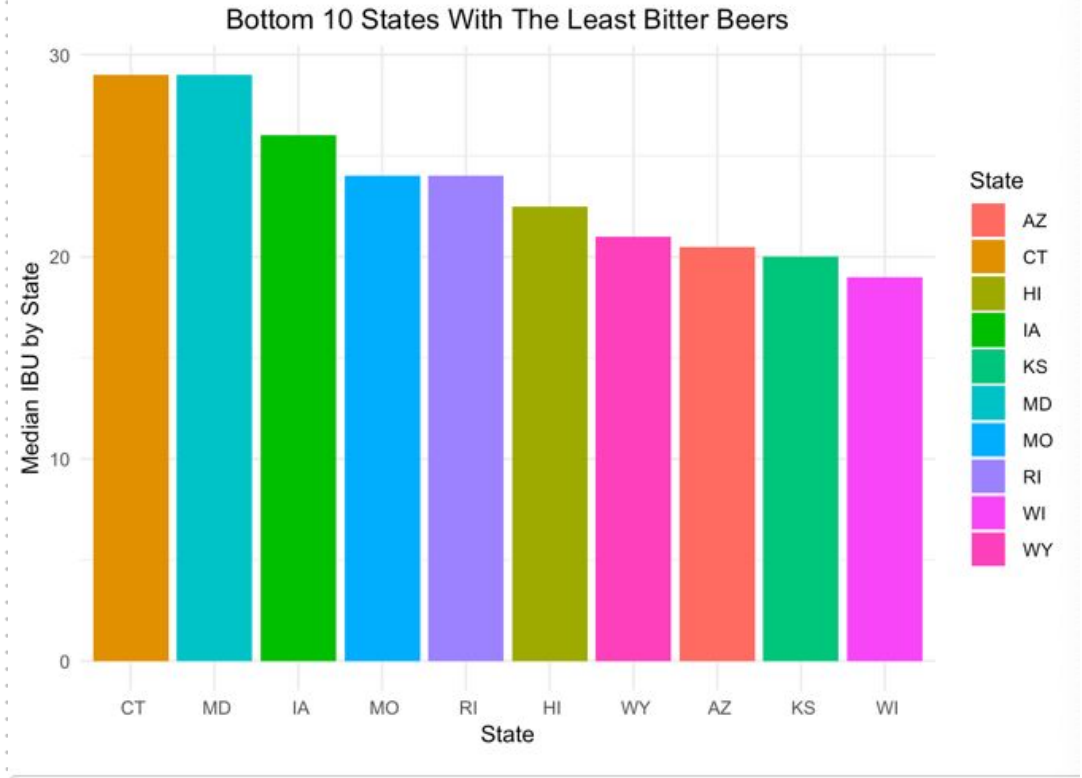
Looking at the states with the least bitter beers, we can see that Wisconsin is the lowest with an IBU level of below 20.



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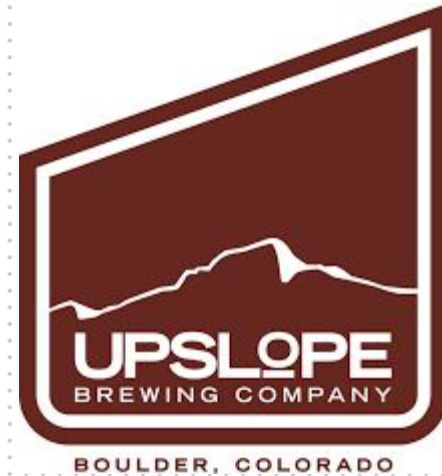
Looking at the states with the least bitter beers, we can see that Wisconsin is the lowest with an IBU level of below 20.



Top ABV Beer

Upslope Brewing Company
Boulder, CO
Lee Hill Series Vol. 5 -
Belgian Style Quadrupel Ale

ABV = **12.8%**



Most Bitter Beer



Astoria Brewing Company
Astoria, Oregon
Bitter Bitch Imperial IPA

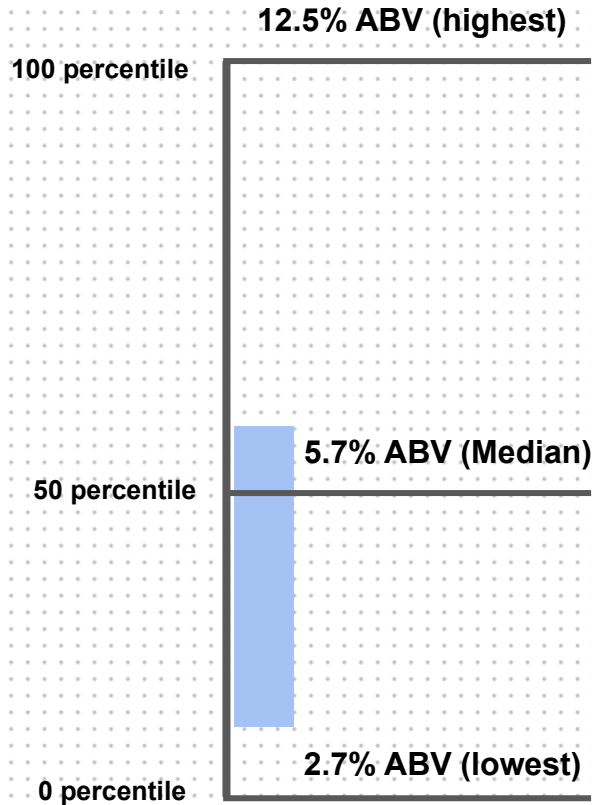
IBU = 138



Distribution of ABV data

The range of alcohol in the beer data runs from 2.7% which would be considered to be non-alcoholic, all the way up to 12.8%.

Looking at the skew of our data, the mean and median relationship appears to be somewhat right skewed towards lower alcohol contents.

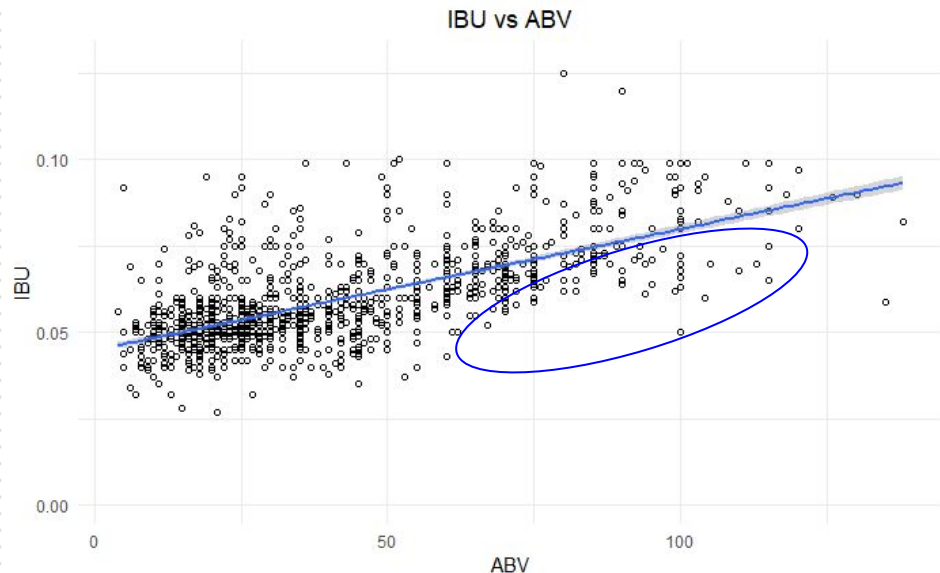


IBU vs ABV

We can see there is a significant positive correlation between IBU and ABV.

Every increase in percentage points in alcohol by volume is associated with a mean IBU point increase by 0.0003.

Knowing that the more bitter a beer, the more alcohol, we can use this model to see that there is less representation of higher ABV beers with less IBU levels.



Conclusion

- If AB wants to open a series of bitter craft beers, marketing heavily in states like Maine, West Virginia and Florida would be a good place to start.
- For a new high-gravity line of beers, strong potential markets for that beer would be Maine, Colorado and Oklahoma.
- There is a market deficiency in less bitter beers with higher alcohol content levels





Appendix

Presentation Videos

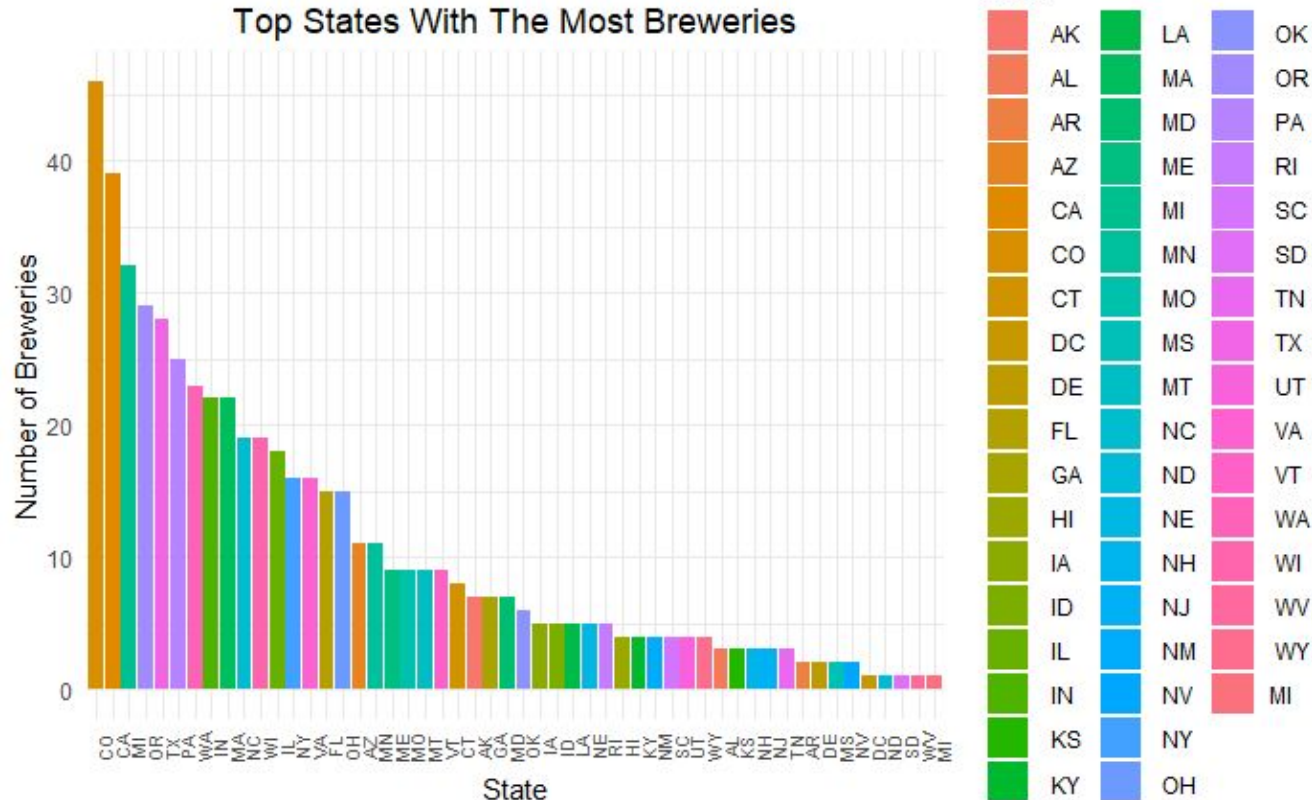


Daniel Clark USMicroBrew Video

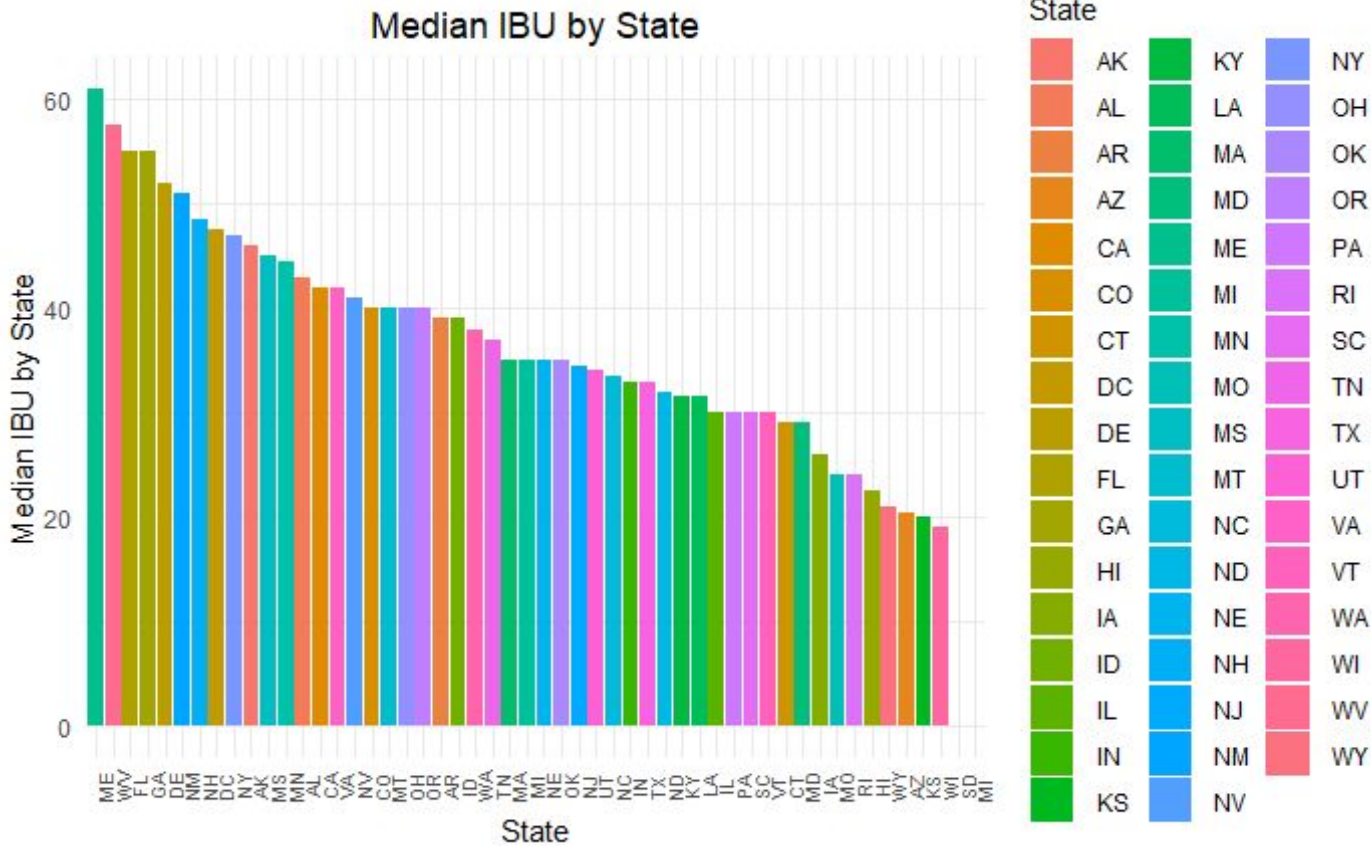
-Daniel Clark: <https://youtu.be/FZIEgmSMxfs>

Grace Lang: <https://youtu.be/YaSSwHE0IHw>

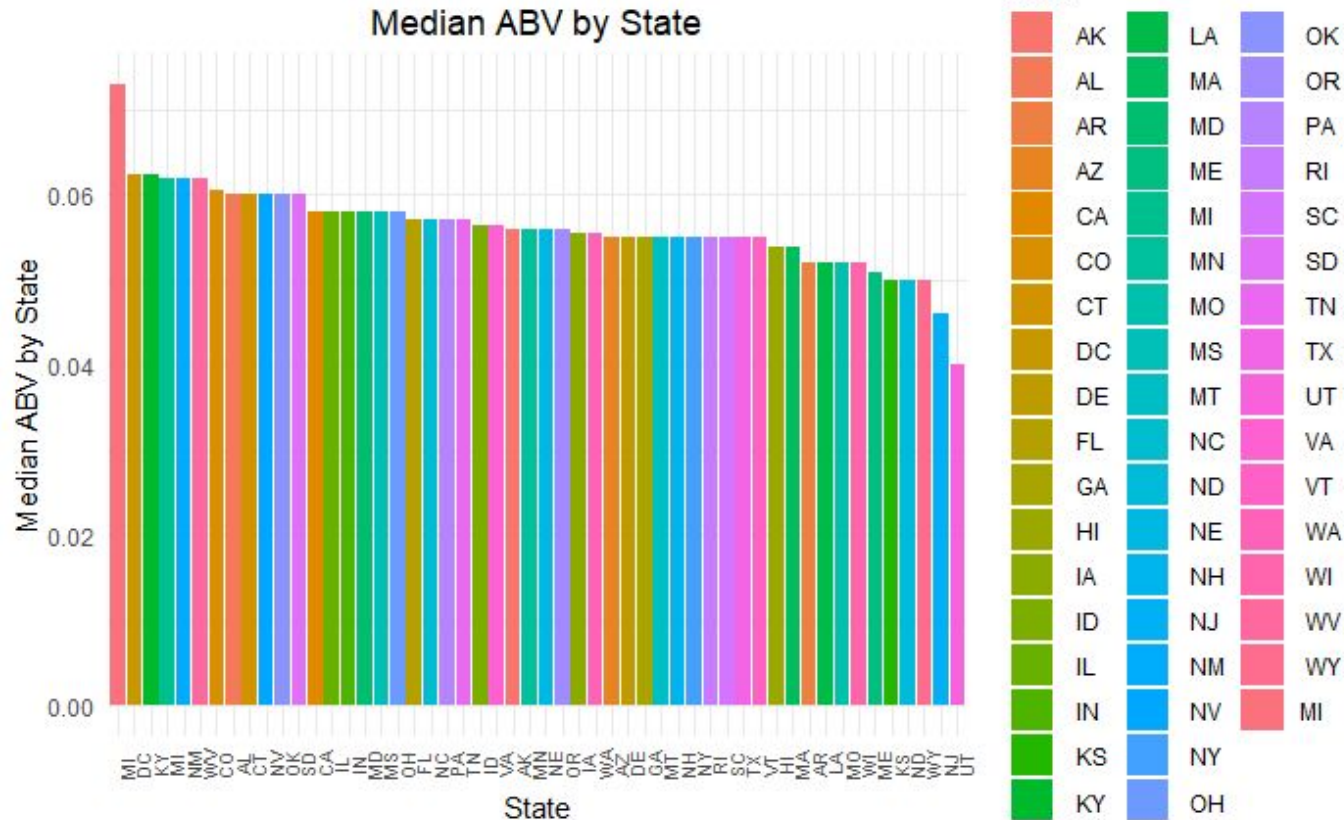
Appendix: 51 States Ranked by Number of Breweries



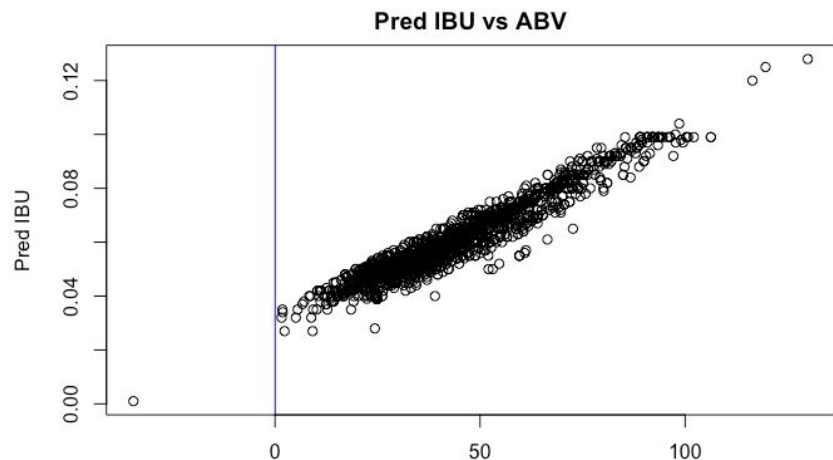
Appendix: Median IBU by State



Appendix: Median ABV by State



Appendix



Since we are missing 40% of the IBU data and since we have a significant correlation between IBU and ABV in the real data, we can predict IBU based on ABV which we plotted to the left

