Executive Summary:

Unfortunately, we were unable to determine any factors within the control of our client to better guide his decision to open new stores.

- Geographical factors such as zip code, county, or city either did not have enough data or were too general to give a conclusion about which geography our client should consider for entry. I.e. We could see in our exploratory analysis that Dallas County was the highest in terms of average sales per store over the year, with a low number of entrants. However, being in Dallas County did not contribute to an increase in sales when we modeled sales.
- The type of alcohol predominantly sold also did not matter to sales success. We must note that Canadian Whiskies and Vodka 80 Proof are the dominant categories, and the cheapest, so our client may want to differentiate from that if expanding and pursuing a differentiation strategy to stand out from the crowd. Differentiating could also result in an ability to charge higher prices and still realize better sales.
- Sales is equal to price * volume. Volume itself seemed to be influenced by price (a negative correlation, implying price hikes lowered volume). However, in testing, this relationship did not hold up when running various regressions.

So overall, while we would recommend our client consider the below factors when launching new stores, we can not offer statistical proof to back them up, beyond correlation and summary data.

- Counties to consider: Dallas, Dickinson, Lee, Cerro Gordo, Clinton (sales scale down dramatically for existing stores after Dallas County)
- Categories to Consider: anything but Canadian Whiskies or varieties of vodka. There is a good chance since these are the dominant categories that a differentiation strategy could better attract customers, even if higher risk.
- Pricing: Pricing is negatively correlated with sales, but in our regressions this relationship did not hold up. We view this as all the more reason to consider differentiation with rarer categories of liquor (higher end cognacs, whiskies) where pricing may be Veblen (increasing prices = same or increasing volumes of sales).

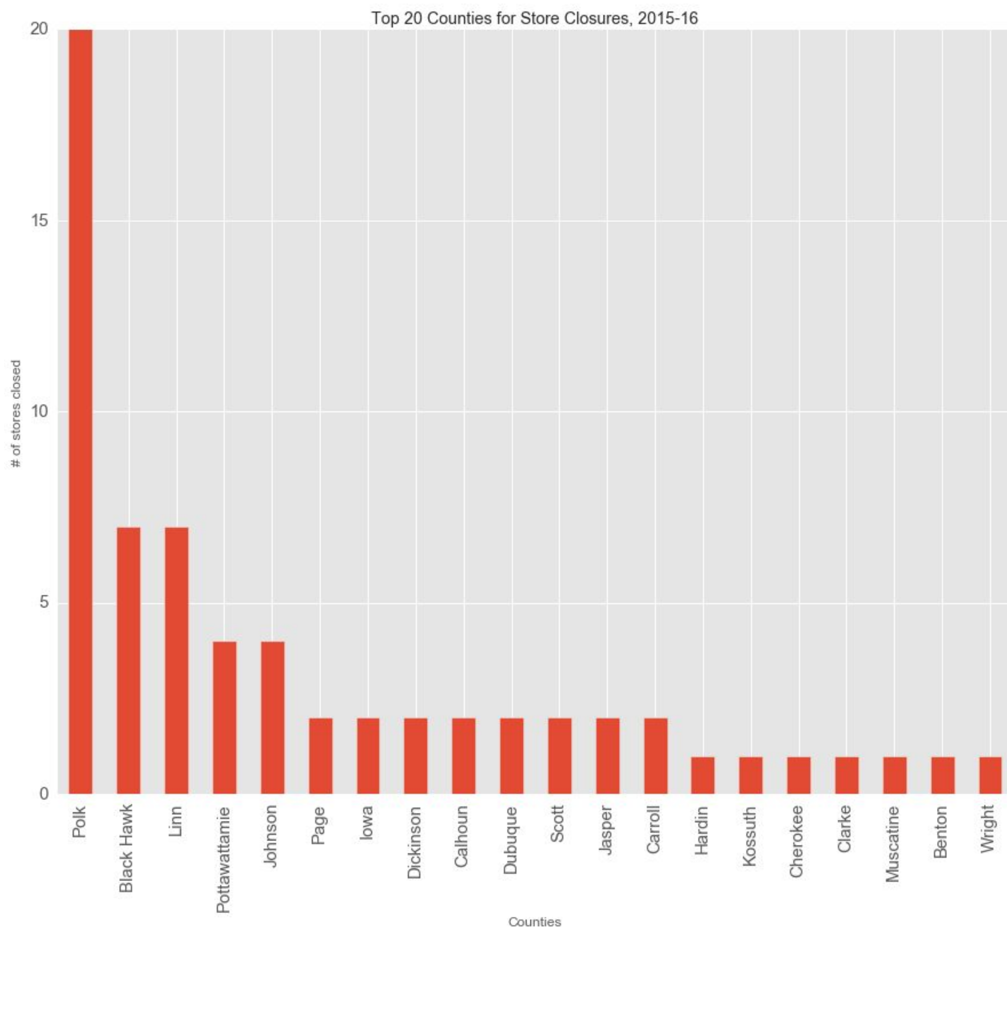
Brief Analysis with regard to Stakeholders: with a differentiation and Veblen pricing strategy, our client will effectively be targeting wealthier Iowans. What this means is:

- His clients likely have the resources to not be a burden on the state should they become alcoholics (though the data we have has nothing to say on this).
- He will likely hire a more skilled set of employees given the need for knowledge as part of differentiation, which in turn also means he may pay better salaries and hence contribute more economically to counties he enters. Alternatively, his current employees may see an excellent promotion opportunity if they learn more about finer liquors.
- Because he will not be competing in the cheaply priced categories the majority of Iowan liquor stores carry, he should not be viewed as a direct threat to existing stores, especially since he is effectively targeting a different customer segment

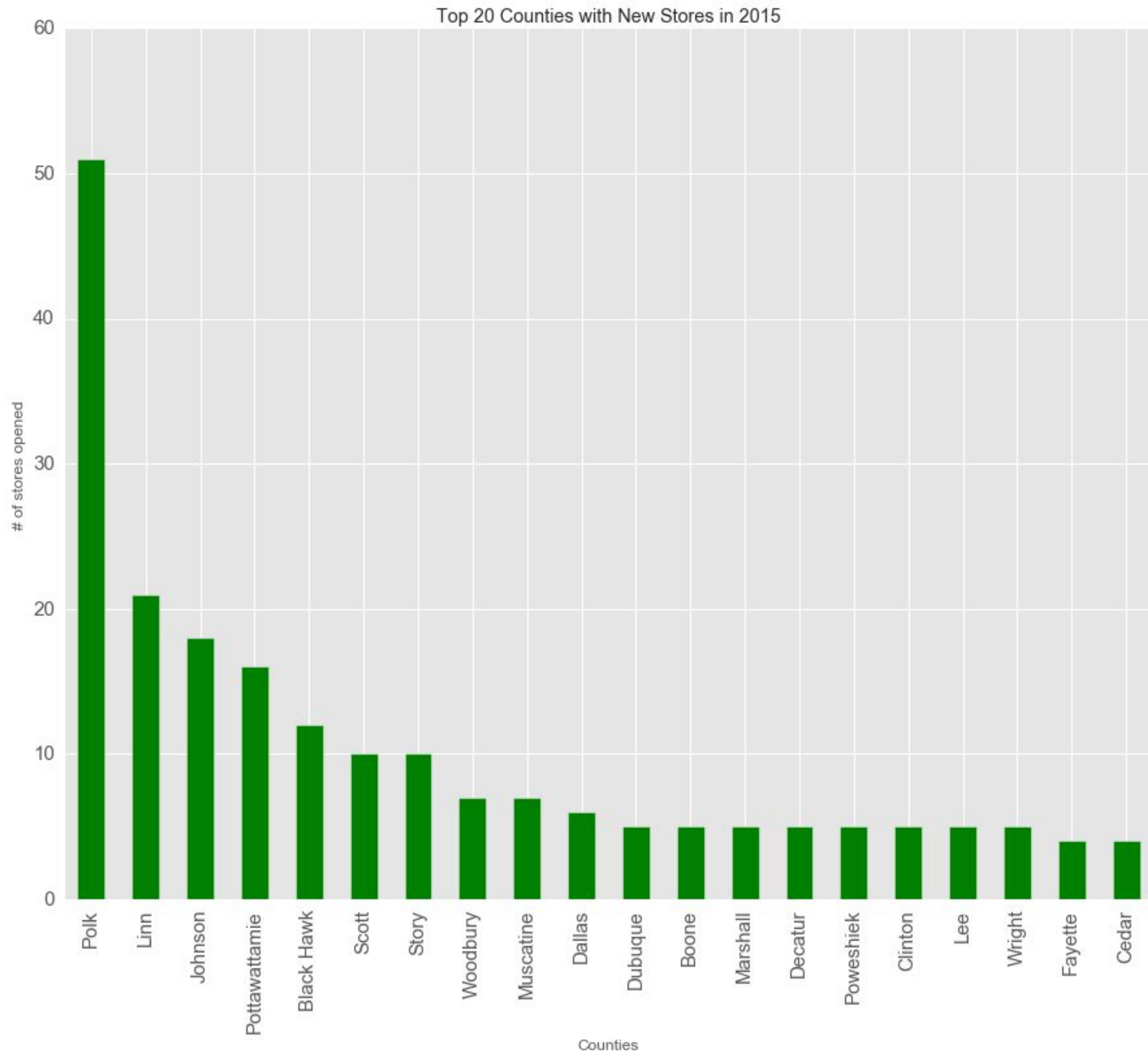
For further study, given our recommendation of differentiation, we would want to study the two types of outliers we had excised for our study: several outliers with high prices per liter and low volumes sold; and also much higher sales per store per year for the relevant price per liter. Such analysis may not be able to be more than exploratory given the small sample size. **However, given that the data we used was a small amount of liquor sales for 2015 and Q1 2016, it is entirely possible that by focusing on these outliers among a broader amount of 2015 data from Iowa, that we could get enough data to support our recommendation of a differentiation and Veblen pricing strategy.**

Supporting Data:

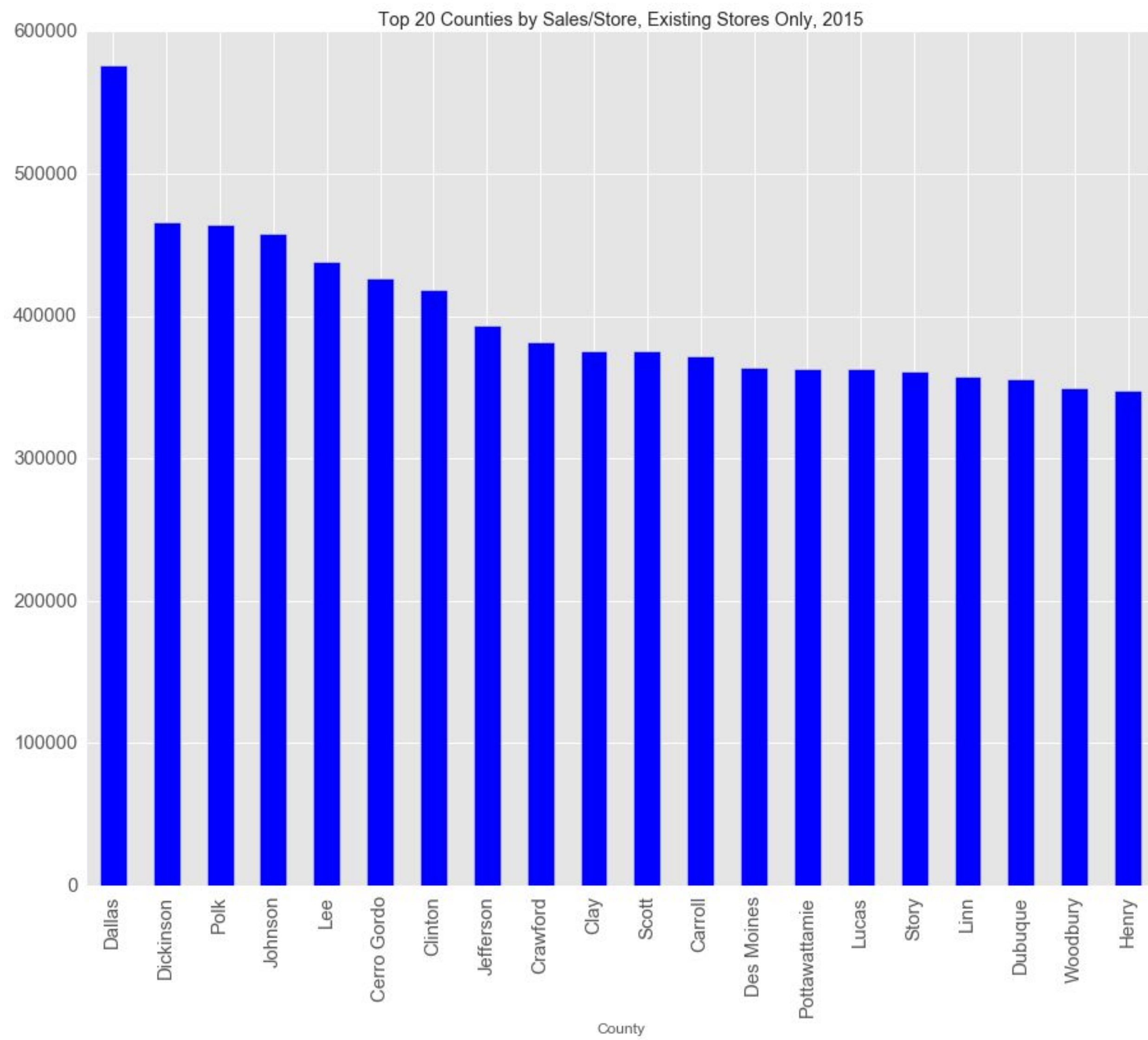
First, we would that based on store closures alone, there are counties not worth entering, even if the regression is neutral on that. They include counties like Polk county where there are also a lot of entrants.



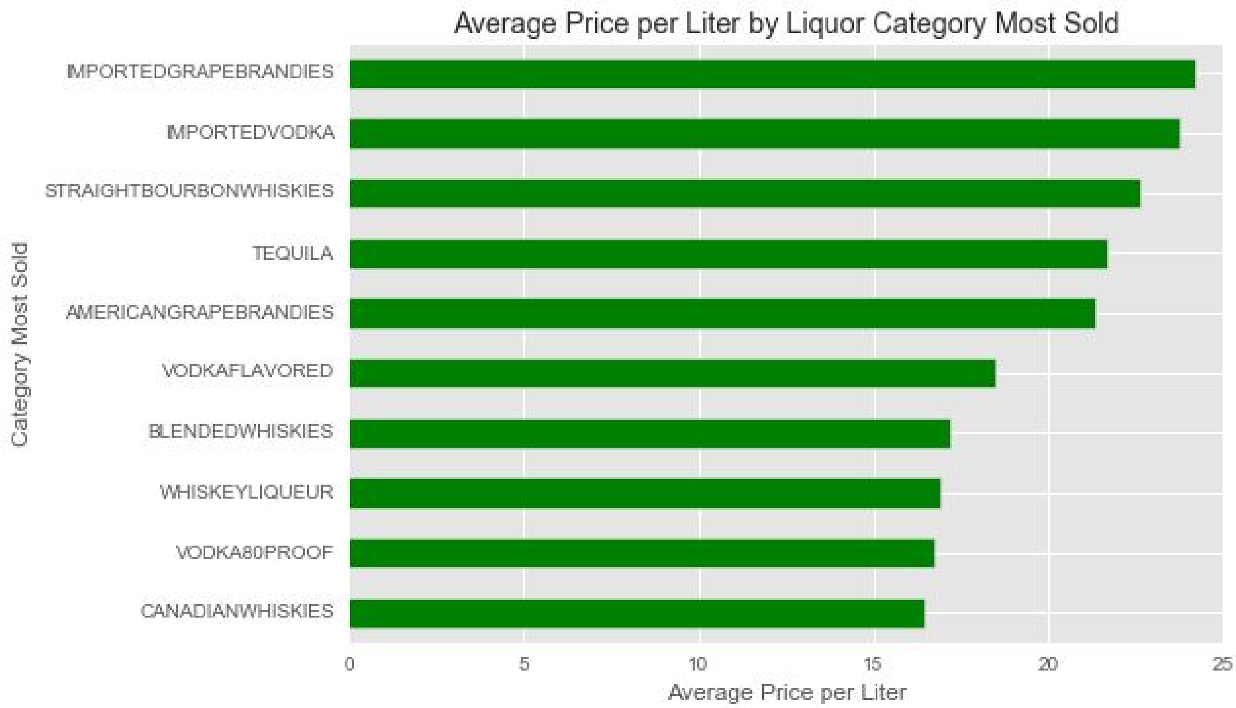
As you can see, with the number of entrants coming into Polk County, it may not be the ideal place to enter.

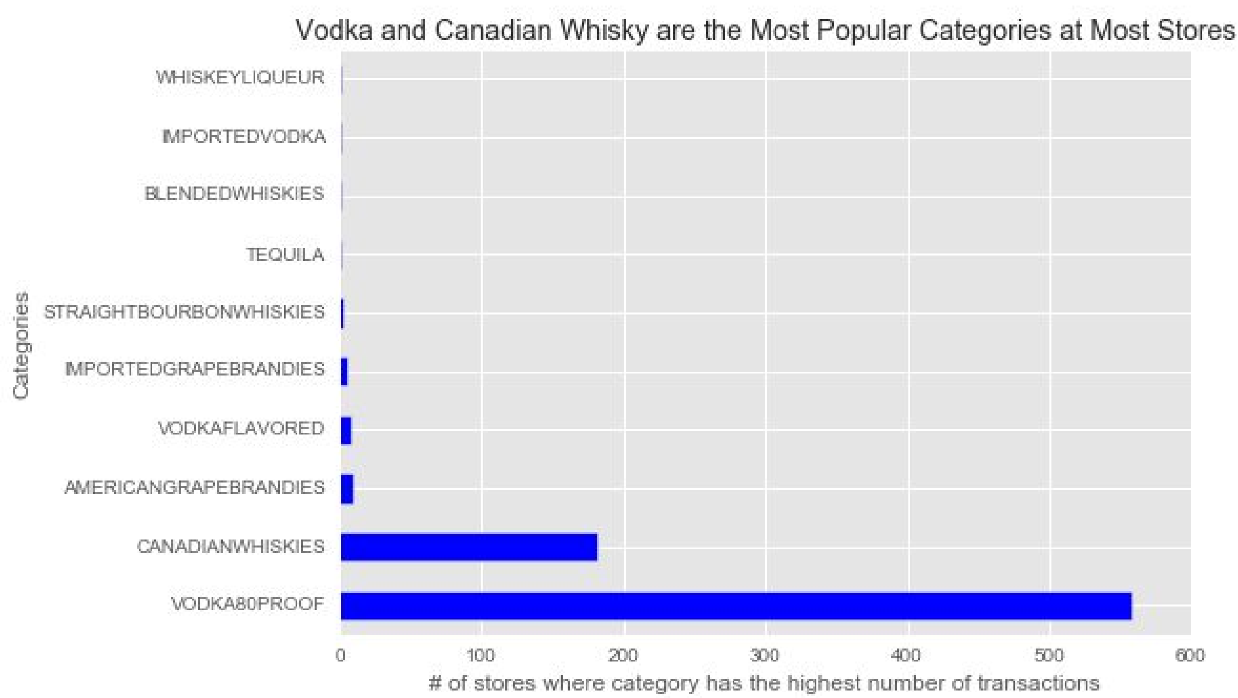


Additionally, Dallas and other counties have stores with higher sales, as shown below.



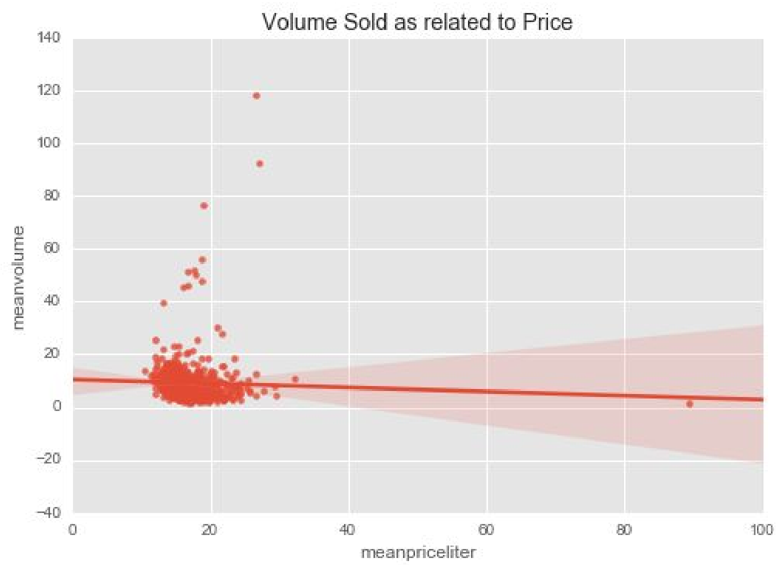
Regarding differentiation, note the dominance of cheaper liquor products in Iowa:





By going into a category such as whisky or imported grape brandies or a category that likely was cut out as an outlier, our client would be differentiating into smaller volume but higher price liquors where it is possible he would have to worry much less about competition, would target a more affluent type of customer, and may even be viewed as a net benefit to the community because he is not selling cheap liquor associated with drunkenness.

Regarding pricing strategy, as can be seen below, increases in price tend to be correlated with decreases in volume sold (mean volume per transaction). However, there are some interesting outliers where a high price actually resulted in a higher volume sold, which are likely the Veblen goods that our client would be interested in if pursuing a differentiation strategy. Unfortunately, we cut out these outliers (and in any case they were too few in this data set to do regression analysis).



Finally, we must note that despite the strong relationship between price and mean volume per transaction, when we tried to regress on this to better offer a model for what actions our client should take to increase sales, our model could not offer adequate guidance. It poorly predicted the data we were testing on, so we can not recommend using pricing as a lever to drive volumes and sales. Again, we emphasize that the exploratory analysis done supports examining the outliers associated with differentiation and Veblen pricing, and collecting more data on them to run a regression.