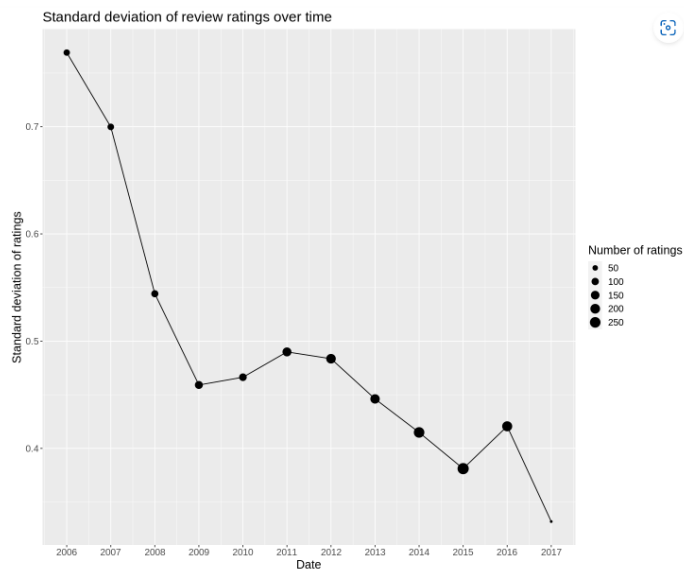


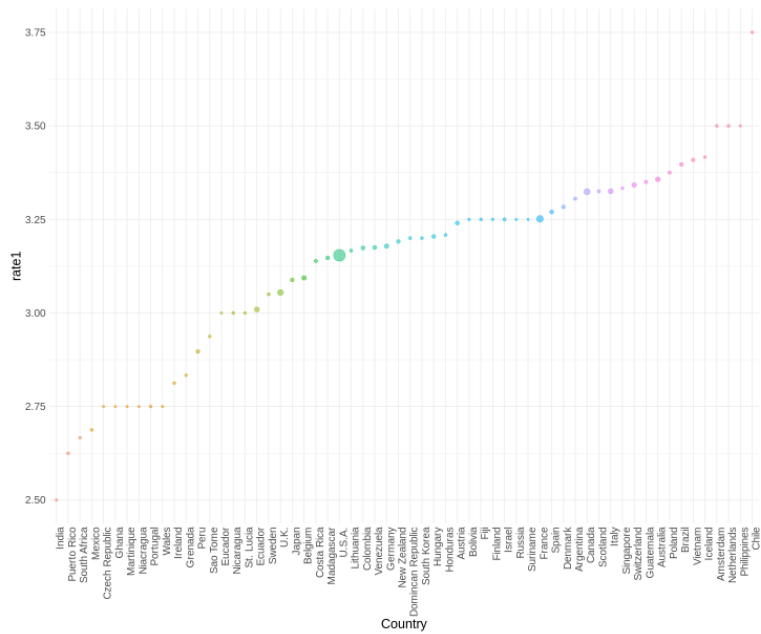
Chocolate Rating Analysis



you can also see that in 2017 the number of ratings taken are low which reduces the deviation range. But still the graph shows that as the years go by the standard deviation of the rating reduces.



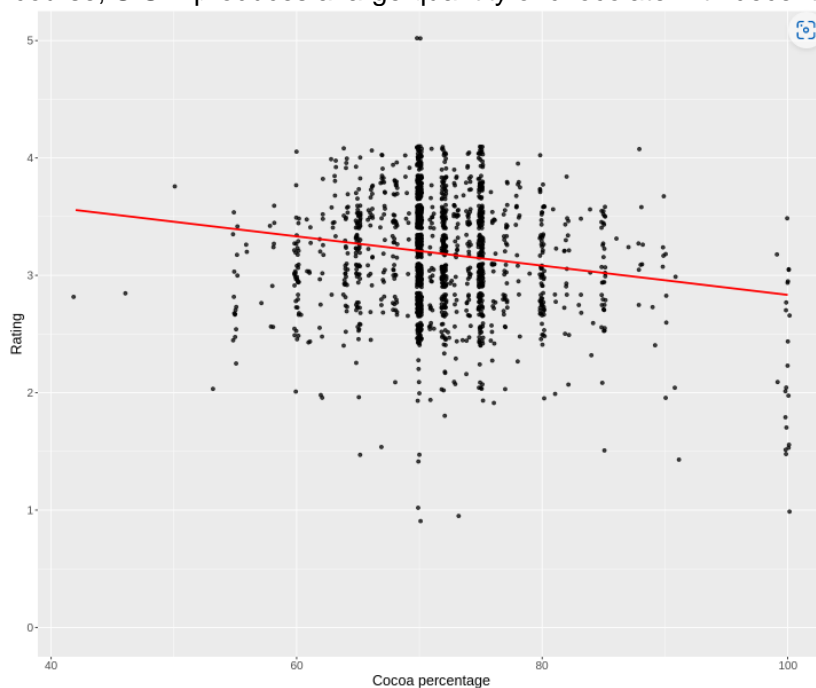
This graph shows that the rating below 2.5 in a year has been reduced to 0 in 2017



The graph shows that Chile has an average score of 3.75, outran all the other countries, produces the highest rating chocolate bars.

If we take the production volume into consideration, Canada and France produce fine quality chocolate with high volumes.

Of course, U.S.A produces a large quantity of chocolate with decent favour.



There doesn't appear to be a strong relationship between cocoa percent and rating here. Let's have a look at the model separately.

Bartlett test of homogeneity of variances

data: rating by location

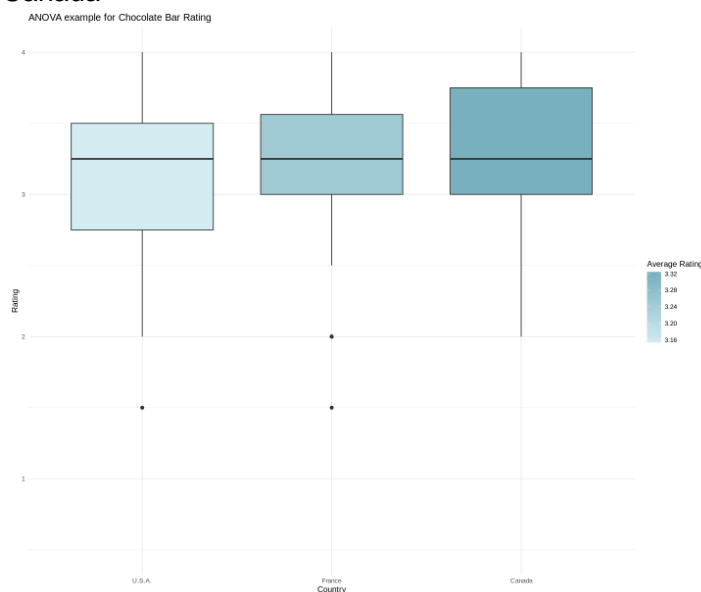
Bartlett's K-squared = 14.232, df = 2, p-value = 0.0008121

From the Bartlett homogeneity test we can see $p < 0.05$, which means the variance level of the three groups are significantly different from each other, therefore we conclude, we can't use ANOVA.

Null Hypothesis: There is No Difference of chocolate bar rating between U.S.A and France.

since p value is less than 0.05 we reject null hypothesis

which shows that there is a significant difference between the mean rating of USA, France and Canada



ANOVA doesn't fit the data, so the result is NOT correct, we can see from the box plot.

Conclusion:

- Over time the average rating isn't increasing but the instances of extreme ratings is decreasing, resulting in a smaller spread of ratings.
- Broad bean origin seems to be well represented by *the big five*:
 - Venezuela
 - Ecuador
 - Peru
 - Madagascar
 - Dominican Republic
- North America has a huge industry for the chocolate, while the Cacao beans are from Africa and South America countries.
- It is interesting to know 50% Cacao produce the highest rating chocolate bar, I like when there is bitter with sweet.