

Mini-Project 1

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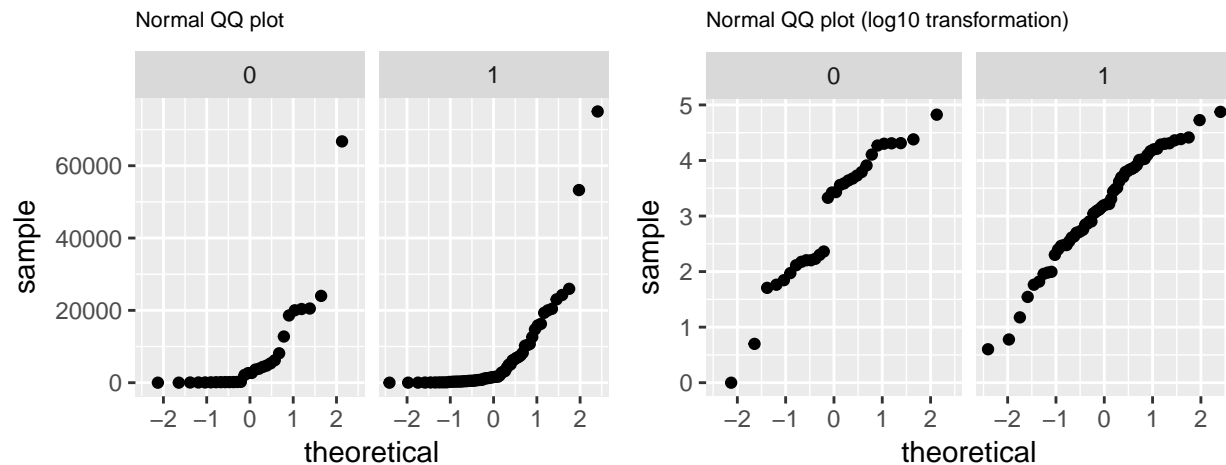
January 29, 2017

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## Warning: package 'ggplot2' was built under R version 3.3.2
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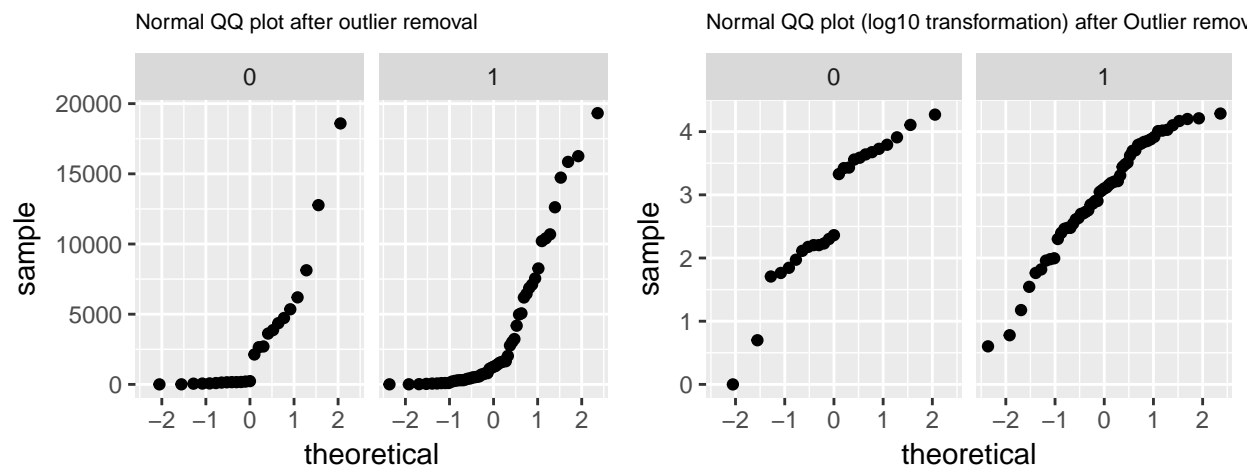
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## Warning: package 'tidyr' was built under R version 3.3.2
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Specific Question

Normality check of damage caused by feminine and masculine hurricanes

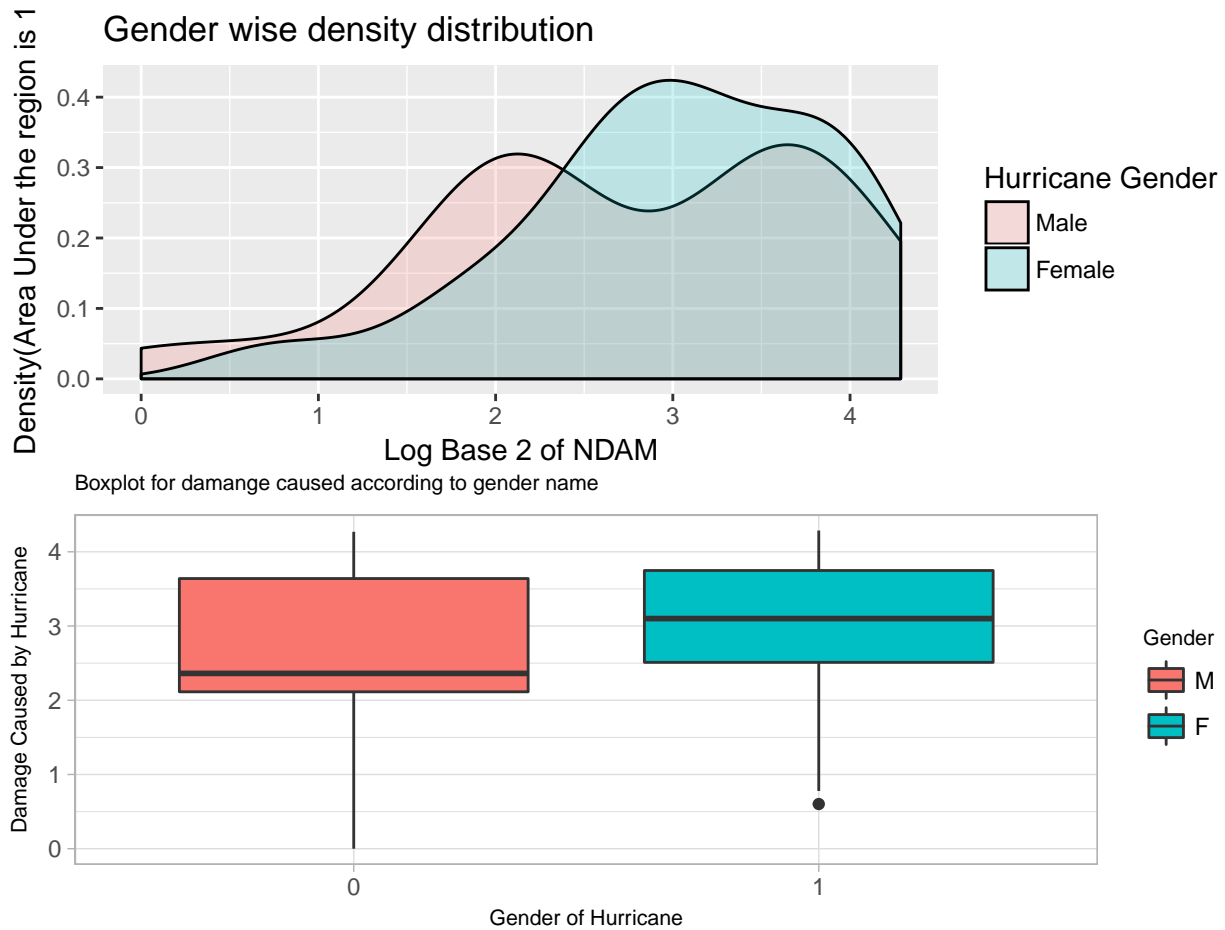


Comment: Without taking any transformation, we can see bunch of outliers and right skewness in both female and male damage distributions. Moreover, both the distributions don't look like normal. Let's try to remove few outliers with observations beyond upper whisker.



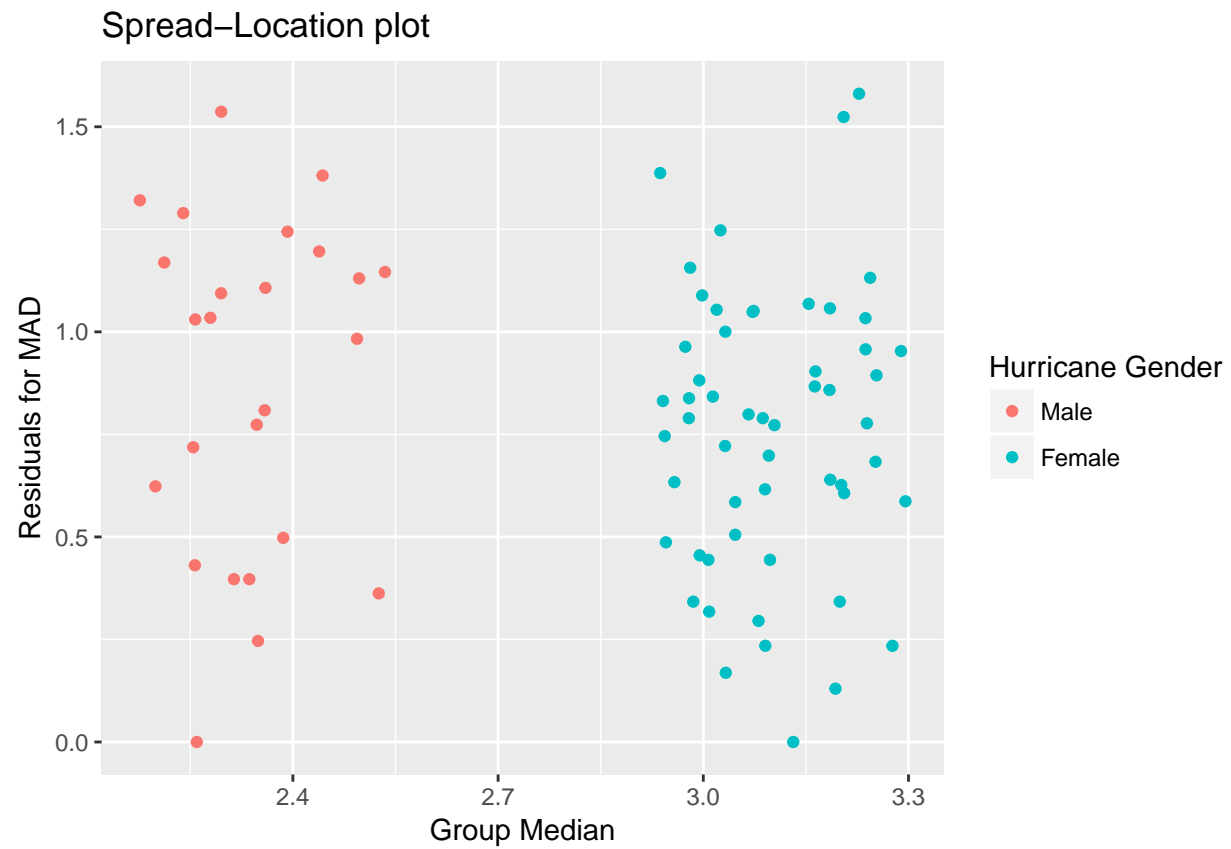
Yet, For Male there are few data points seems to be an outlier. After taking log transformation, both the distributions look better than previous time. We can't even see much outliers now. But, both distributions don't look like normal. So, we will stick to this transformation for further analysis.

Box plot of two distributions for Log10 Transformation



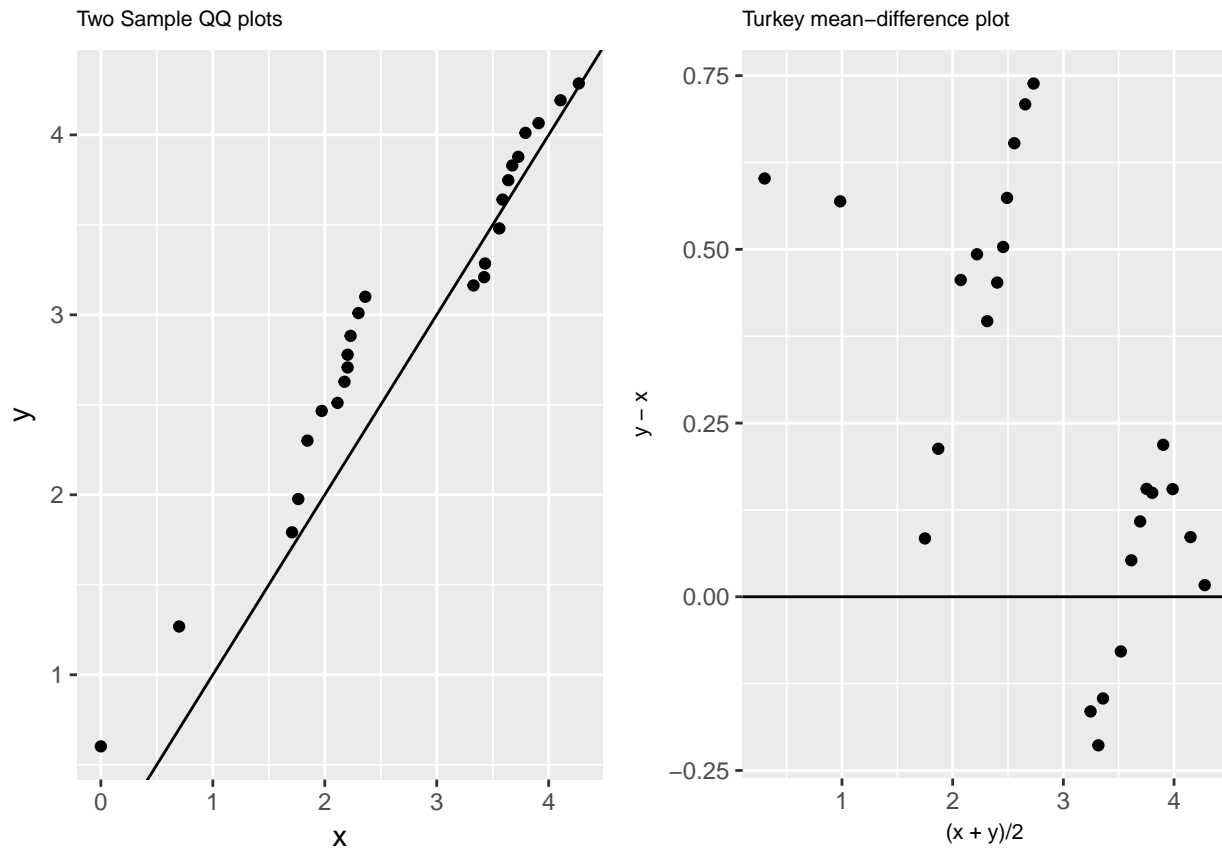
Comment: As we can see in the boxplots of destruction caused by feminine and masculine hurricanes, Female NDAM has higher median than Male NDAM. NDAM with Male has higher Spread than Female.

Let's see if there is a difference in spread though there is not much difference in scale. Let's try on Log transformation. As median is robust to outliers, let's plot the spread location plot.



As the data is not enough to draw inference, spread-location plot does not give any inference.

Relationship between two distributions



Comment: After doing careful examination of QQ plot and mean-difference plot, we can't see any additive and multiplicative shift between these two distributions. Relationship between these two distributions is somewhat complicated.

Conclusion

We can say that there is some meaningful difference between the distribution of damage caused by hurricanes with female names and the distribution of damage caused by hurricanes with male names. This also correlates with an article that hurricanes with female names are expected to have less damage caused and hence less protective actions taken. However, in reality, it did not happen and typically the median went for Female NDAM might have gone higher than Male hurricane.