## Statistical Inference Report
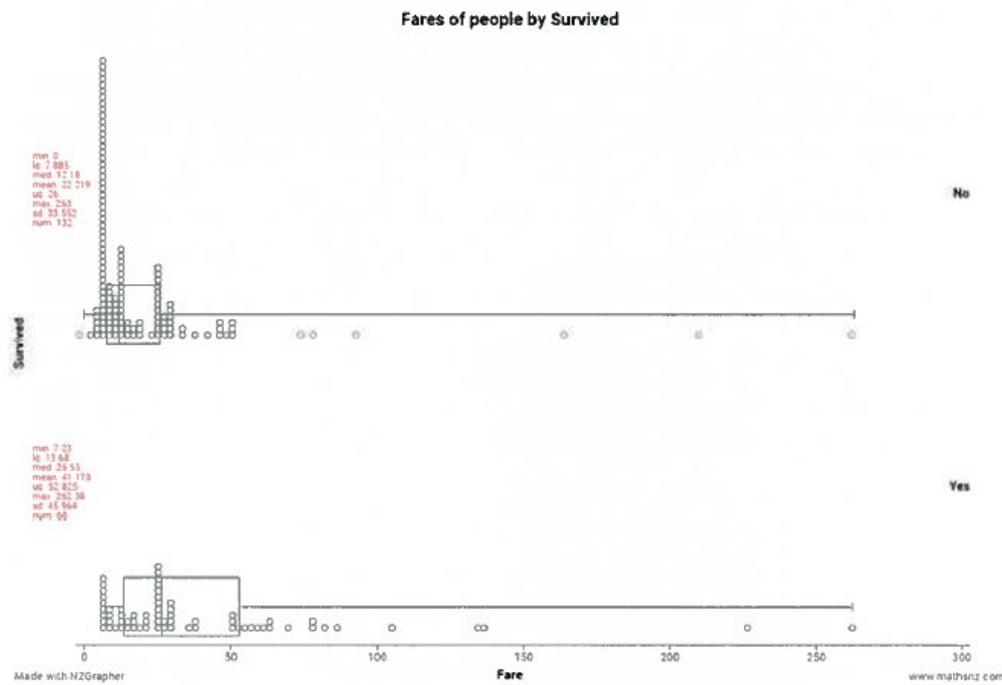
According to Wikipedia when the titanic sank it only had enough
lifeboats to carry about half of those on board and third-class passengers who I think would have paid way less for their fares were largely left to fend for themselves, causing many of them to become trapped below decks as the ship filled with water. In fact "54% of those in third class died".

I wonder if there is a difference between the median fares of people that were on the Titanic in 1912, who survived and who did not, according to a sample provided from a Titanic passenger list. I am doing this investigation to discover whether the more money you payed increased a passenger's chances of survival. I think that if you were in first class on the Titanic, it would have increased your chances of survival because in Wikipedia it says that the first class passengers were closer to the lifeboats.

The fare is the amount a passenger on the Titanic paid to board it in British pounds (B.p), and survived is whether a passenger survived the Titanic sinking or not. The fares are different due to different class.



Fares of people by Survived

The passengers that survived, had a median fare that compared, with the passengers that did not survive, was 14.37 B.p greater.

The middle 50% of the passenger's fares, that survived the Titanic, are between 13.68 B.p and 52.83 8.p whereas the middle 50% of the passenger's fares, that didn't survive the Titanic, are between 7.89 B.p and 26.00 B.p. The passengers that survived the Titanic have a median fare that is greater than the upper quartile of the passengers that did not survive the Titanic.

The difference between the medians is 14.37 B.p which is 0.320 of the overall visual spread, which is a significant difference.

The interquartile range for the fares of Titanic passengers that did not survive is 18.115 B.p whereas the fares of Titanic passengers that did survive, have an interquartile range that is 39.145 B.p. So the interquartile range is higher for passengers who did not survive. The standard deviation for the passengers that did survive the Titanic is also higher and overall visually, the middle 50% of fares of passengers that did survive the Titanic seem to be more spread out than for the passengers that did not survive. ④ ③
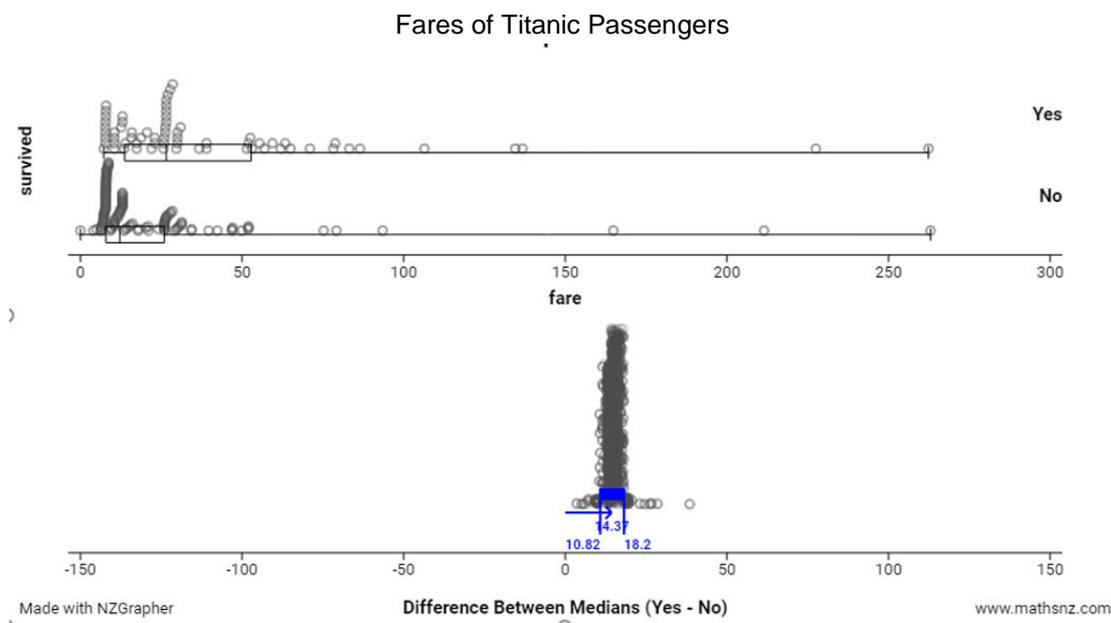
The fares for passengers that did not survive the Titanic appear to be skewed to the right and the passengers that did survive also seem to be skewed to the right. The passengers that did survive the Titanic appears to be slightly unimodal and the passengers that did not survive also seems to be slightly unimodal. ③

There is not really any special features looking at this data set.

I will now be adding a bootstrapping graph.



Fares of Titanic Passengers

From the bootstrapping confidence interval comparing medians shows that the median fares of passengers that did survive the Titanic disaster in 1912 was likely to be between 10.82 B.p and 18.2 B.p more than the median fares of passengers that did not survive the Titanic disaster. ⑤

Based on looking at my data sample of Titanic survivors and non-survivors fares, I am confident that the passengers that did survive the Titanic median fares will tend to be greater than the median fares of passengers on the Titanic in that did not survive. I can state this as my bootstrap confidence interval for the difference in the price of fares for passengers that did survive and passengers that did think it is safe to assume this as the entire confidence interval is positive. I am basing this conclusion on the confidence interval that i calculated. This involves resampling from my original sample of 200 passengers on the Titanic. I am assuming my original sample was a representative of the population of all passengers on the Titanic. If I were to make another sample, the results may differ but i would still expect the same outcome of my confidence interval being positive. ⑥ ⑦

Reference - https://en.wikipedia.org/wiki/RMS_Titanic