

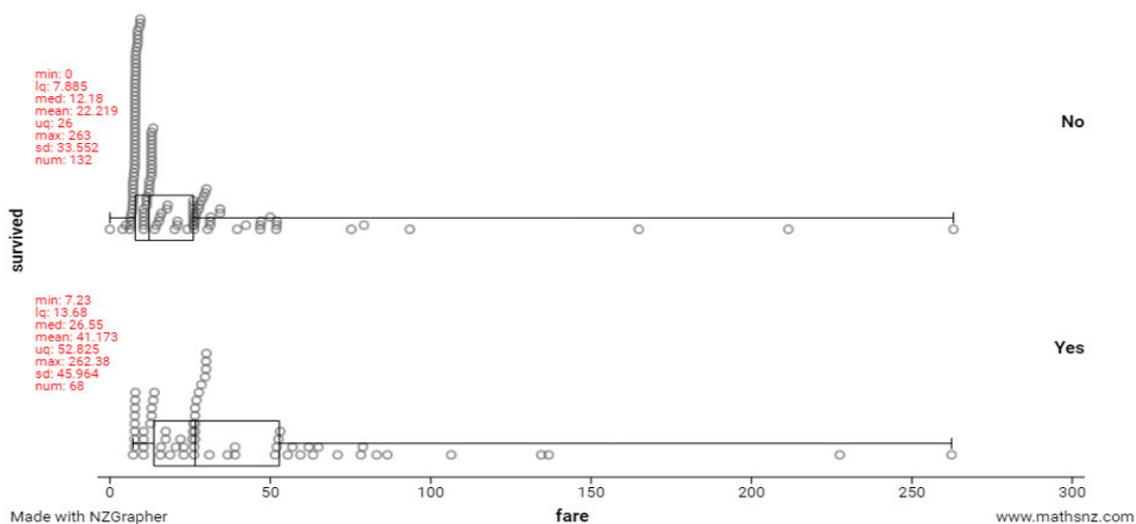
## Titanic

My research shows that the median fare price that was paid by the survivors was higher than the median fare price that was paid by non-survivors. For example, my research states that a first class ticket today costs around £83200 today and the third class tickets cost around £298-£793. Of the first class riders, 60% of them had all survived. I also discovered that first-class facilities and accommodation was located on the top decks of the Titanic to avoid the vibrations and noise of the engines which were at the bottom of the ship. This also meant that first class passengers were closer to the lifeboats. Only 25% of the third class ticket buyers survived, as they were closer to the bottom of the boat and because of this they were further from the lifeboats. Also, the Titanic itself was built to gold 32 lifeboats, however, only 20 were on board at the time. One of the lifeboats had the capacity to hold 65 people, however, only 27 carried on the lifeboat, so I feel that there should have been more lifeboats on board for caution. In total there was 2228 people on board the Titanic, but only 705 survived and 1523 unfortunately perished. Using this research and data, I will be able to conclude whether or not it is statistically true that those who paid a higher price were more likely to survive.

## Problem

I wonder what is the difference between the median fare of the Titanic passengers of those who survived and those who unfortunately didn't survive the horrific Titanic accident in 1912. My prediction is that the median price a person who survived paid for a ticket will be higher. The fare is the price that passengers of the Titanic paid to board the ship in British pounds.

## Analysis



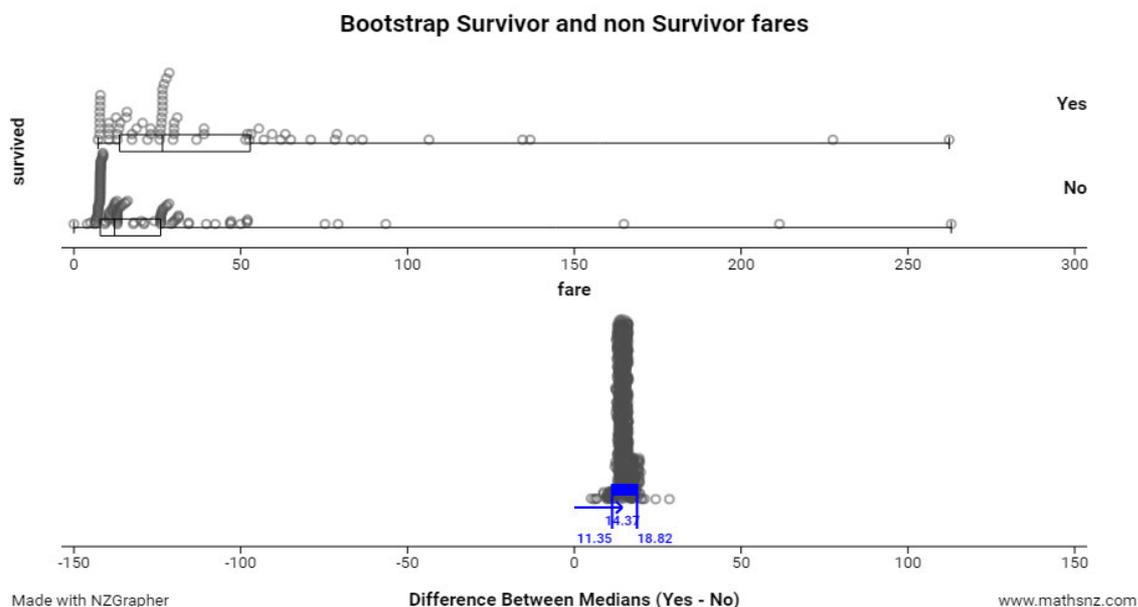
The median of the survivors is £14.37 higher than the median of the non survivors, as it is £26.55 compared to the non-survivors £12.18. I am looking at the median rather than the mean because the extreme values affect what the center looks like, therefore the mean isn't used. So far this is lining up with my expectations as I expect that the people who paid a higher fare rate more likely survived. This supports my research because it showed that those who paid more were able to allow them to stay on one of the higher decks of the ship, therefore increasing their chances of survival as they were further away from the danger. For example, of the third class survivors, only 25% of the people that stayed on that level survived. Whereas the percentage of people that survived that stayed in first class was 60%.

The middle 50% of the non-survivors fares are between £8 and £26, whereas the middle 50% of the survivors fares are between £13.70 and £52.80. Saying this, there is quite a bit of overlap between the upper quartile of the non-survivors and the lower quartile of the survivors. So this suggests that there was quite a difference in the fares paid and that survivors on the Titanic in 1912 paid more for their ticket than the non-survivors. This once again can be linked to my research as this result lined up with

my expectations, as I had predicted that those who survived paid a higher median fare price. This is because if they paid more, they would have been staying in one of the rooms on the upper deck.

The interquartile range for the survivors is £39.10 whereas the interquartile range for the non-survivors is £18, indicating that the survivors have more variation in the fare price that they had paid than the non-survivors. The standard deviation is also higher for the survivors. Overall, visually the survivors seem to be slightly more spread out than the non-survivors. (2)

The shapes of both graphs are different when compared to each other. The non-survivors fare paid seems to be a bimodal graph with a peak close to around £7-8 and another peak near £25. On the other hand the survivors fare paid seems to be a unimodal graph with a mode around the median of £26.55. Although it is very skewed to the right it has a shorter tail stretching from the upper quartile to the highest value than the non-survivors graph. This supports my prediction because on the survivors data there is more people that paid more for their fare, which is why they were more likely to survive. (3)



It is a fairly safe bet using the bootstrapping graph, that the median fare that was paid by the survivors is likely to be between £11.35 and £18.82 more than the non-survivors on the Titanic in 1912. (4)

### Conclusion

From this information and data, and based on looking at the sample that I was given, I am reasonably confident that the median price paid by the survivors of the horrific Titanic accident in 1912 was higher than what was paid by the non-survivors. This is backed up by the bootstrapped confidence interval as my confidence interval said that passengers that did survive the Titanic, median fares is likely to be between £11.35 and £18.82 more than the passengers, that did not survive the Titanic, median fares. This interval along with my analysis matches what I thought would happen. If I analysed another set of data, some of the points and the statistics may have differed and maybe people that paid a lower price could have survived more in that sample. However, I feel I will be able to claim this statement even with a different sample as the bootstrap confidence interval is positive. There are many other possible variables that could be considered during this investigation, such as the age and gender of the passenger. This would require a more detailed analysis. (5)  
(6)

### References

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