# Homework 2 - Research in Health Economics

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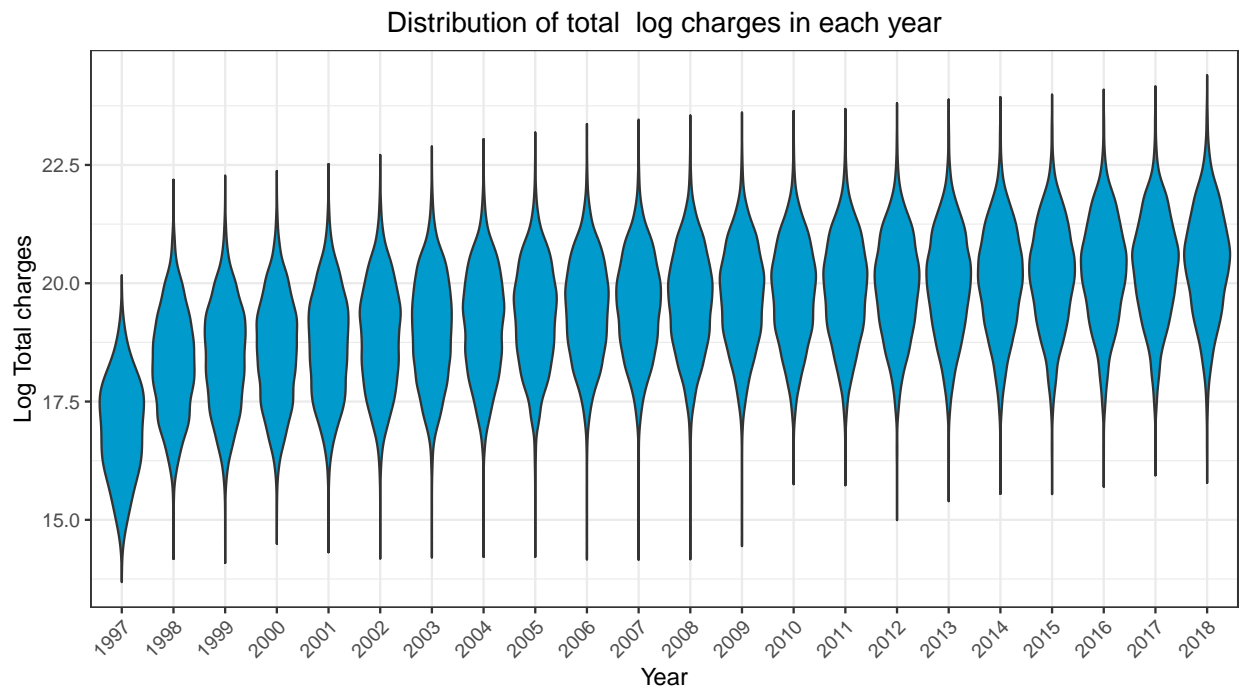
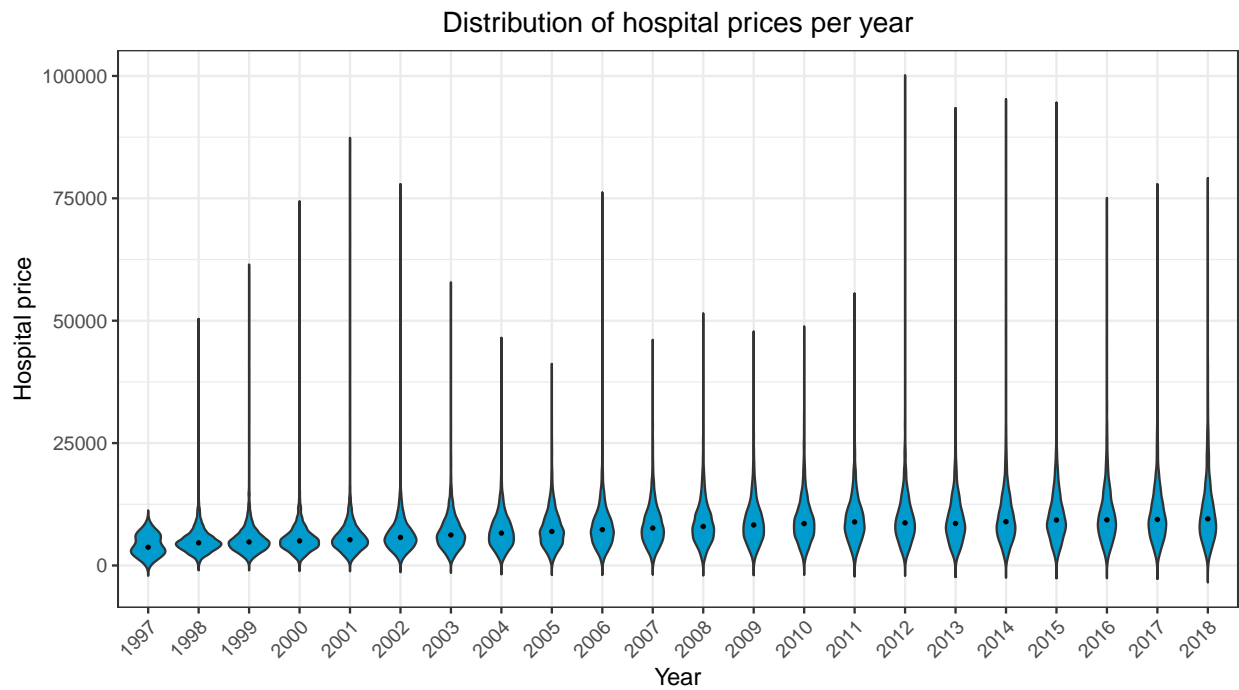## Question 1

Number of hospitals that filed more than one report in the same year
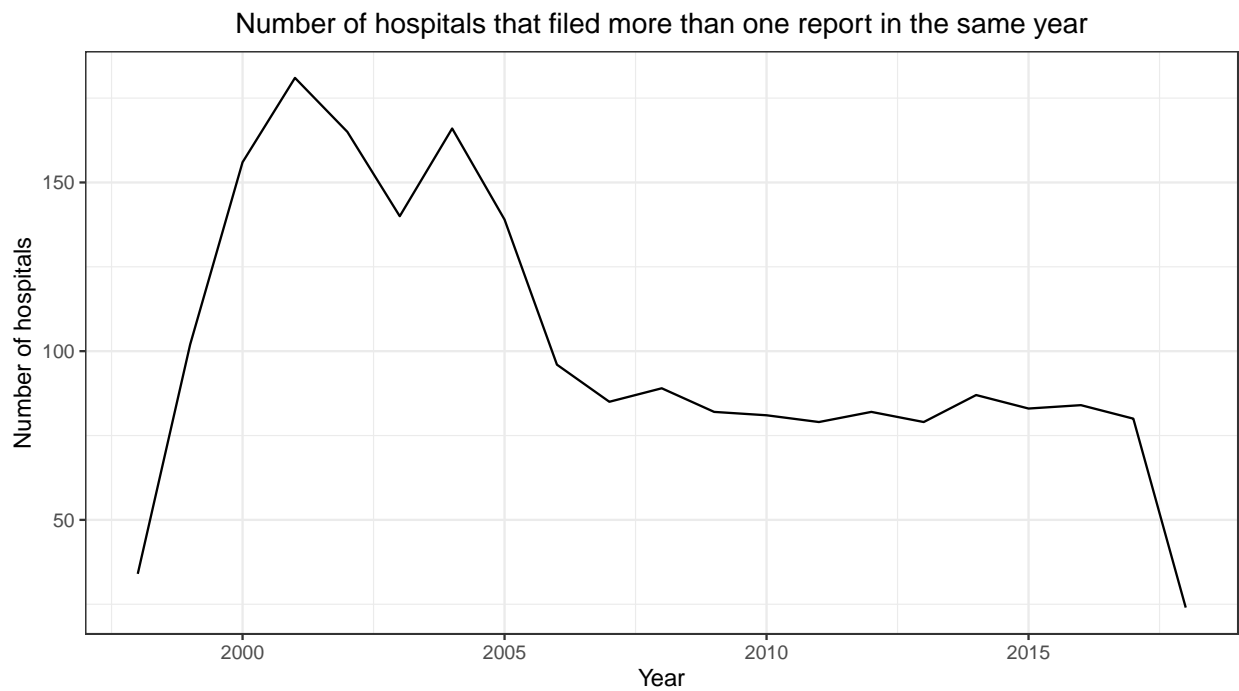


## Question 2

There are 9,323 unique hospitals in the data set.

# Question 3

**Distribution of total log charges in each year**



# Question 4

**Distribution of hospital prices per year**

# Question 5

The average price for a hospital without penalty is 9560.41, while the average price of a hospital with penalty is 9896.31.

# Question 6

| Quartile of bed size | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Average price for no penalty | 7684.240 | 8510.959 | 9856.928 | 12355.61 |
| Average price for penalty | 8318.709 | 8690.891 | 10127.130 | 12068.48 |

# Question 7

| Estimator | ATE |
|---|---|
| Nearest neighbors (1 neighbor), inverse variance distance | 199.53 |
| Nearest neighbors (1 neighbor), mahalanobis distance | 199.53 |
| Inverse propensity weighting | 199.53 |
| Linear Regression | 199.53 |

# Question 8

The results above are identical to each other.

# Question 9

I don't think I have a casual effect above, since I have only controlled for a few variables (quartiles, penalty). There are likely other variables such as the competition mentioned in class, not included in the estimators that bias the result, as hospitals with high competition may tend to have less penalties and higher prices. This would make that the groups we are comparing to each other are systematically different from each other, and we would be obtaining bias results.

# Question 10

The hardest part for me was getting the data this time, as I had to do it manually. Apart from this, I have had a hard time figuring out how to code what we learned in class in regards to IPW. I understood the theory, but had a hard time putting it into practice.