Bhasin-S-hwk2-3

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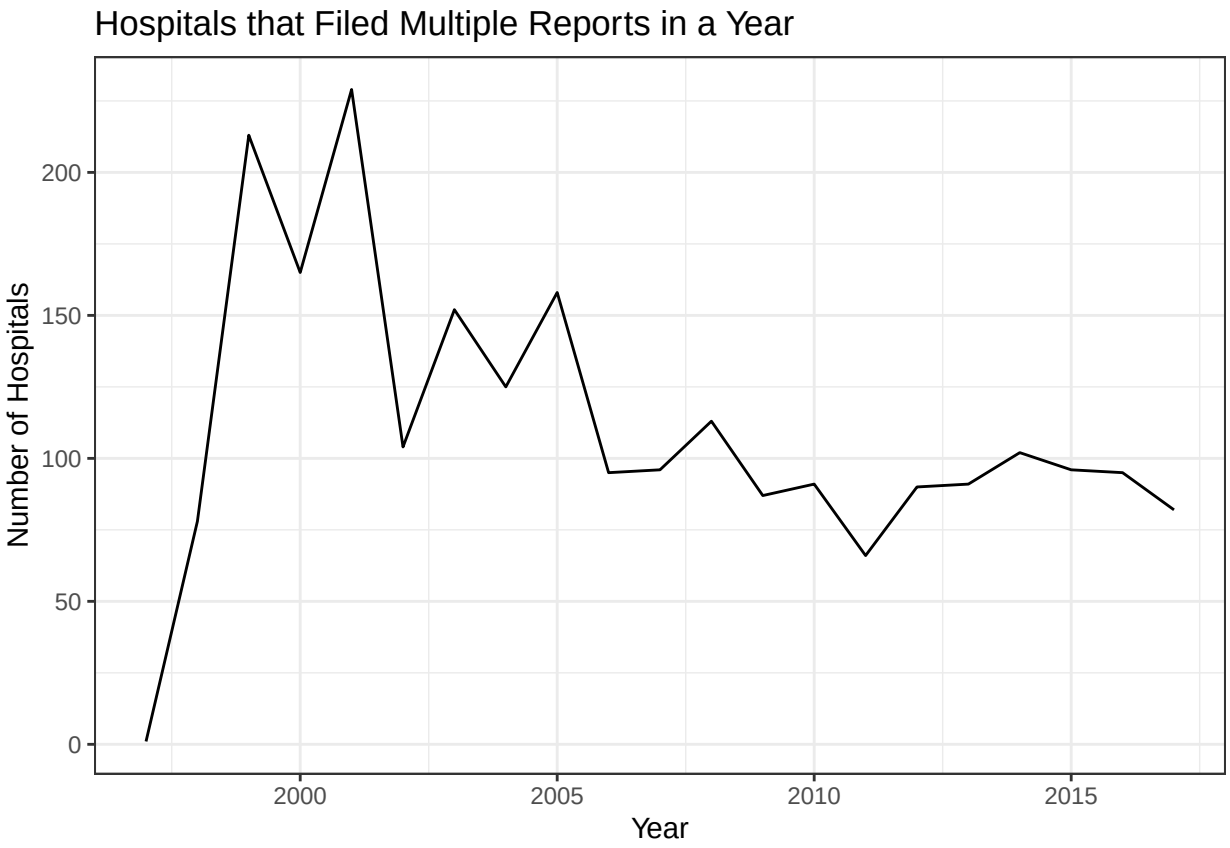
Question 1

2,329 hospitals filed more than one report in the same year.

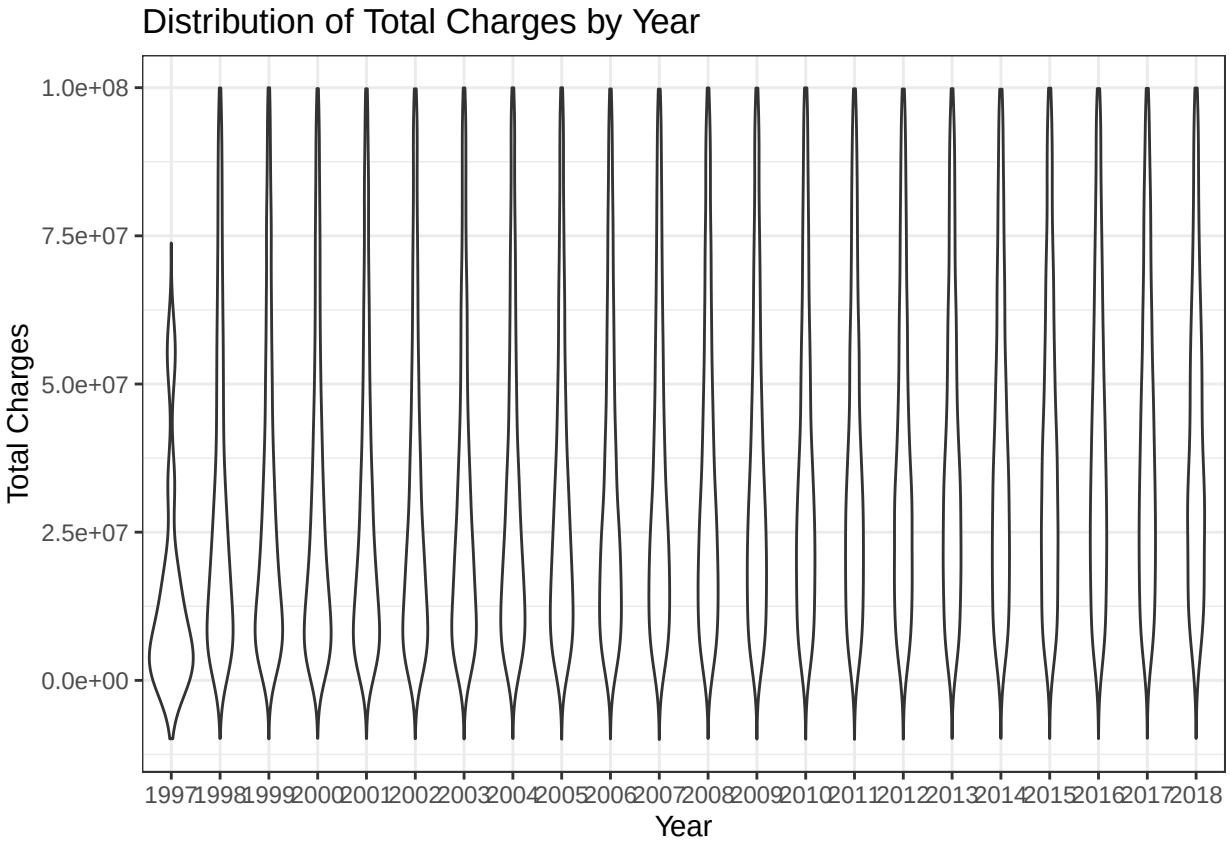


Question 2

After removing/combining multiple reports, there are 9,323 unique hospital IDs in the data.

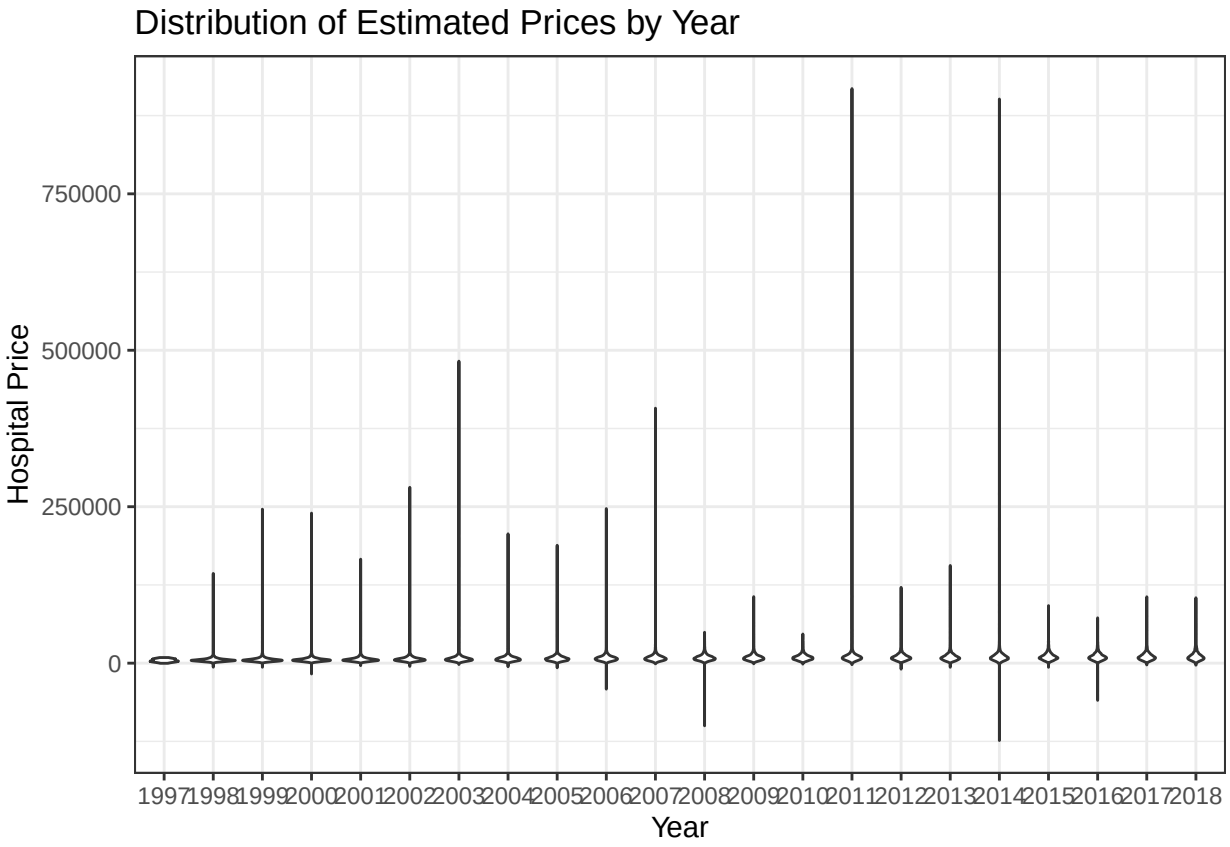
```
## [1] 9323
```

Question 3


Distribution of Total Charges by Year
Total Charges
1.0e+08
7.5e+07
5.0e+07
2.5e+07
0.0e+00
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
Year

Question 4

This graph made me realize we had to filter our data since some of the prices were negative and some of tthe values were extreme.



Question 5

Before calculating the average price among penalized versus non-penalized hospitals, prices were filtered to be positive and below 100,000 to get rid of outliers.

```
## # A tibble: 2 x 2
##   penalty  price
##     <dbl>  <dbl>
## 1       0  9791.
## 2       1 10235.
```

Question 6

```
## # A tibble: 8 x 3
## # Groups:   penalty [2]
##   penalty quartile avg_price
##     <dbl>    <int>     <dbl>
## 1       0        1     8482.
## 2       0        2     8361.
## 3       0        3    10521.
## 4       0        4    11749.
## 5       1        1     7653.
## 6       1        2    10833.
## 7       1        3     9339.
## 8       1        4    12435.
```

Question 7

```
##         Matching.Inverse.Variance Mahalanobis.Matching
## penalty                  286.4789             286.4789
##         Inverse.Propensity.Weighting Linear.Regression
## penalty                     286.4789          286.4789
```

Question 8

With these differnt treatment effect estimators, the results are identical.

Question 9

I think we have estimated a causal effect of the penalty by matching with inverse variance distance and Mahalanobis distance as well as inverse propensity weighting. Also, running the simple linear regression was another method for eliminating potential confounding variables, suggesting a causal effect.

Question 10

I found working with this data challenging but easier than homework 1 as I am getting more comfortable trouble shooting and working with this application. I learned how to create a dummy variable and quartiles for a data set. It was very aggravating to troubleshoot the error I kept getting with the propensity score and number 7 in general.

R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

0.1 Including Plots

You can also embed plots, for example:

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.