

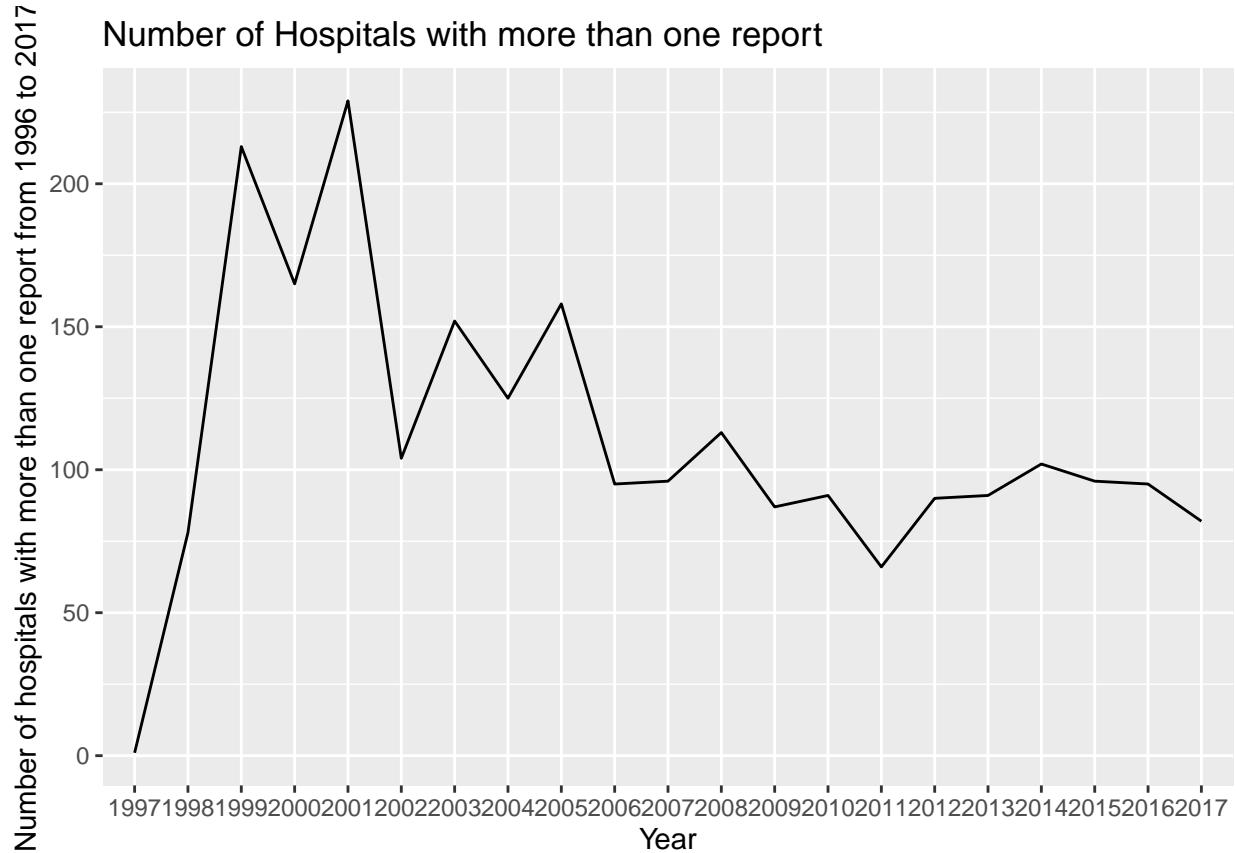
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#Answers

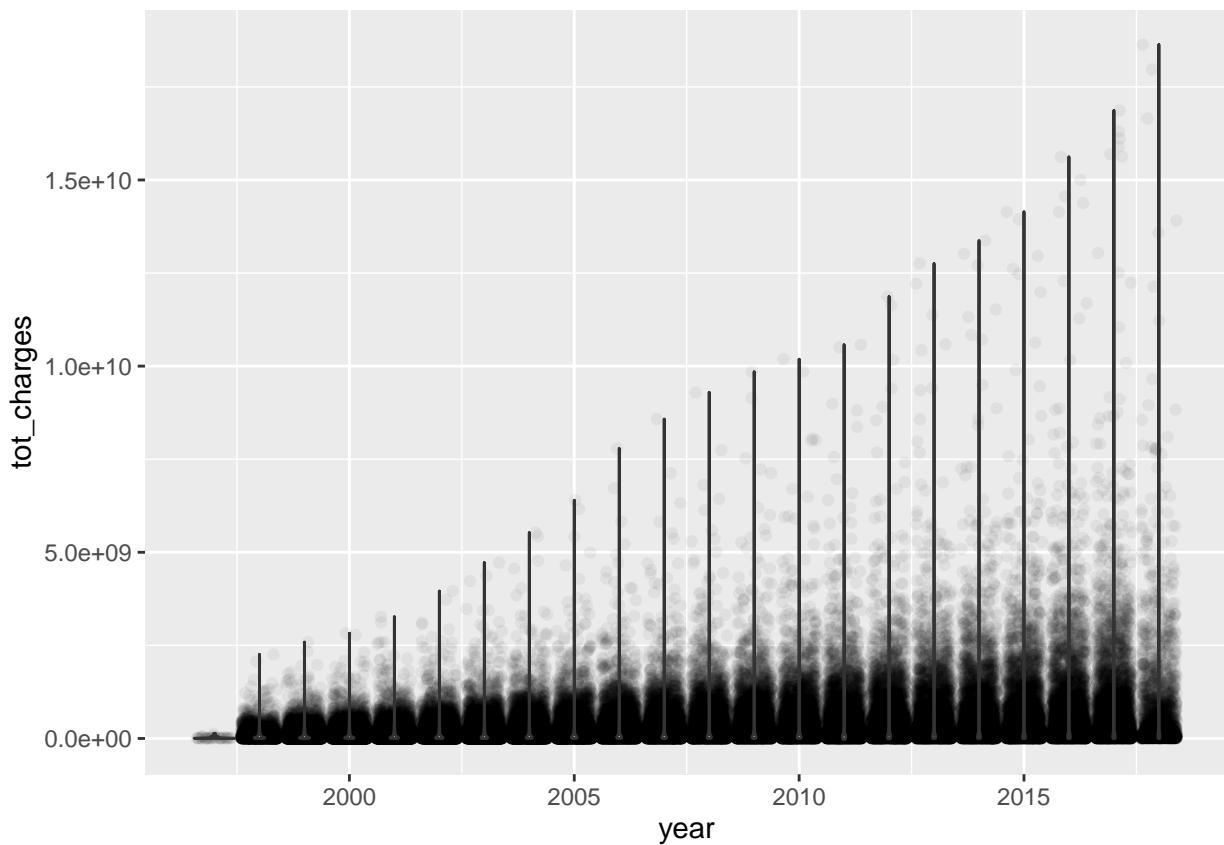
1



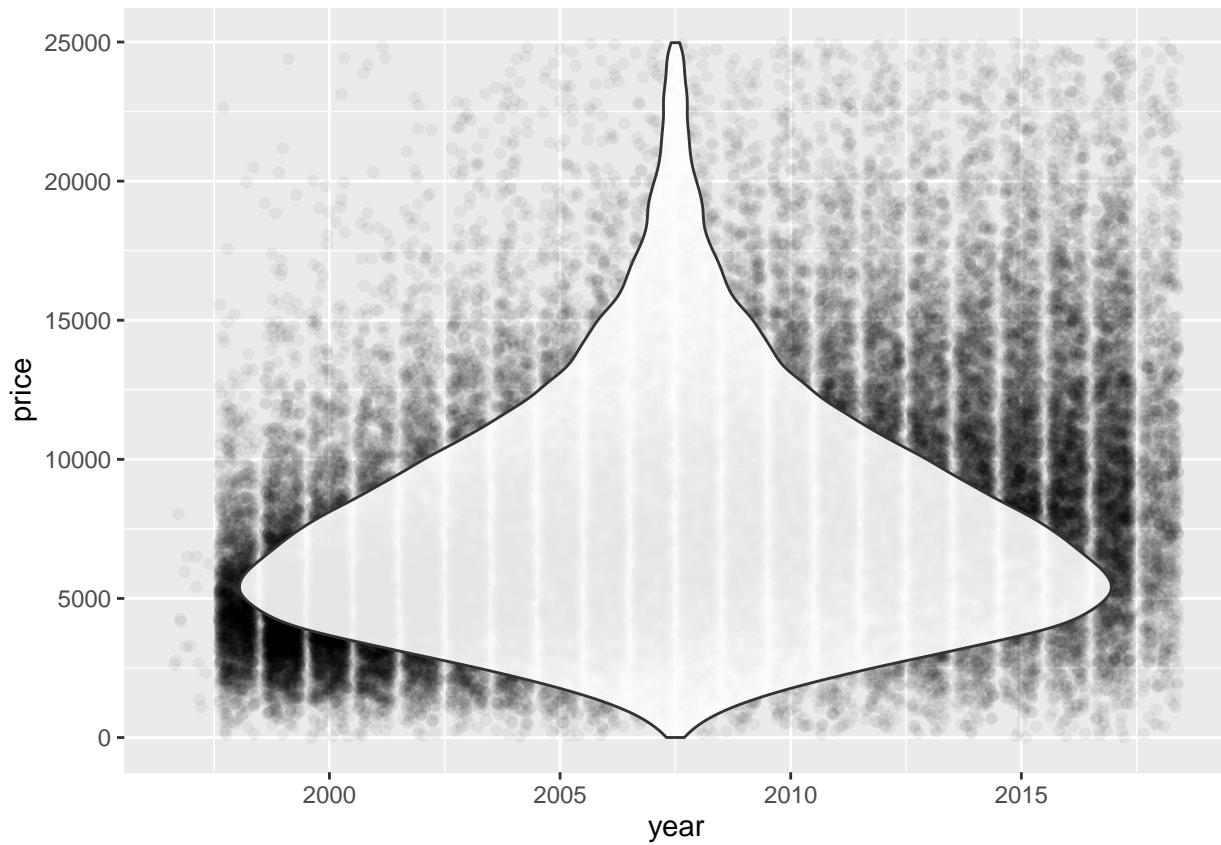
2

```
## Number of unique hospital IDs 9323
```

3



4



5

```
## # A tibble: 1 x 1
##   penalty_price
##       <dbl>
## 1         9896.

## # A tibble: 1 x 1
##   no_penalty_price
##       <dbl>
## 1         9560.
```

6

```
## # A tibble: 8 x 6
## # Groups:   group, Q1, Q2, Q3 [8]
##   group      Q1     Q2     Q3     Q4 mean_price
##   <chr>    <dbl>  <dbl>  <dbl>  <dbl>      <dbl>
## 1 Control     0     0     0     1    12367.
## 2 Control     0     0     1     0     9848.
## 3 Control     0     1     0     0     8526.
## 4 Control     1     0     0     0     7696.
```

```

## 5 Treatment    0     0     0     1    12068.
## 6 Treatment    0     0     1     0    10132.
## 7 Treatment    0     1     0     0     8721.
## 8 Treatment    1     0     0     0     8286.

```

7

```

##
## Estimate... 163.64
## SE..... 144.8
## T-stat.... 1.1301
## p.val..... 0.25842
##
## Original number of observations..... 2733
## Original number of treated obs..... 704
## Matched number of observations..... 2733
## Matched number of observations (unweighted). 2733

##
## Estimate... 252.65
## SE..... 143.35
## T-stat.... 1.7625
## p.val..... 0.077992
##
## Original number of observations..... 2733
## Original number of treated obs..... 704
## Matched number of observations..... 2733
## Matched number of observations (unweighted). 2733

## [1] 193.8313

## [1] 0

```

Table 1: ATE

	Nearest.neighbor.matching.with.Nearest.neighbor.matching.with.Nearest.neighbor.matching.with.inverse.propensity.weights	Nearest.neighbor.matching.with.inverse.propensity.weights	SightlineRegression
penaltyTRUE	163.6406	252.6541	193.8313

8

All these different estimator provide a different estimate of the average treatment effect. My prediction for this is because they are using different frameworks in finding observations that are similar both between the control and treatment groups.

9

I did not estimate a causal because i was unable to correctly complete the ATE estimates but to actually answer this question yes because we are able to see the effect of the control and treatment groups on price by also having weights to better estimate the causal inference

10

honestly this homework was incredibly hard and frustrating. I think i spent at least 20 hours of straight coding or problem solving Also i feel very lost in terms of the new material we are covering in class which does not help when i need to apply this knowledge with real data in the homework one thing i did learn was i am getting better at cleaninig up the data and I believe I did good work until question 5 ish however one thing that still frustrates me is my inability to understanding the matching function and concepts we have learned in this module.