

# Homework Four Submission 2

Safia Read

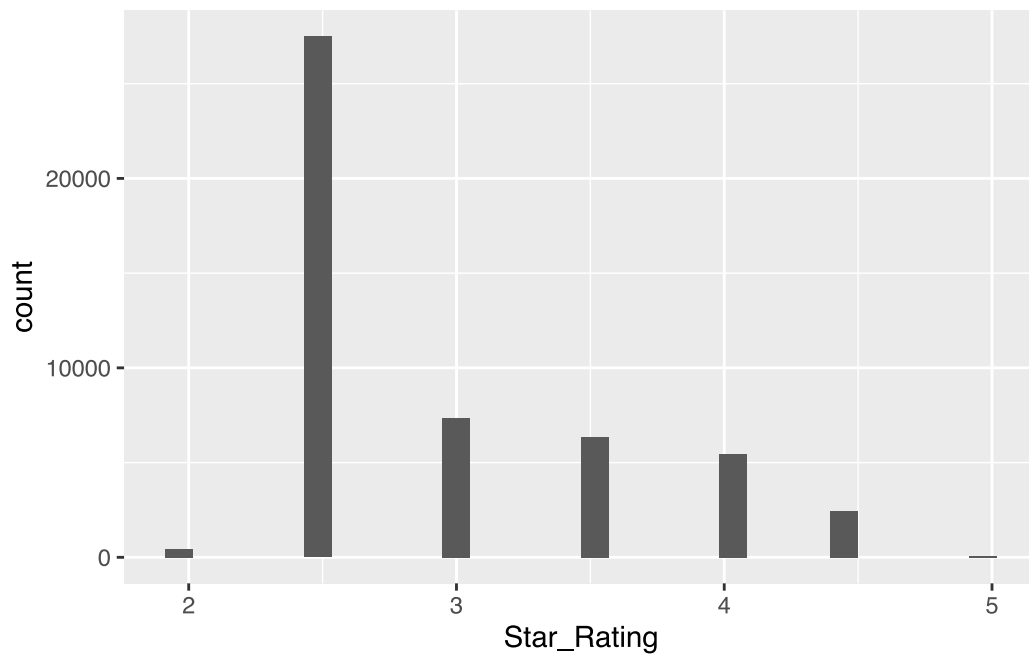
This is my second submission of the fourth homework for Econ 470.

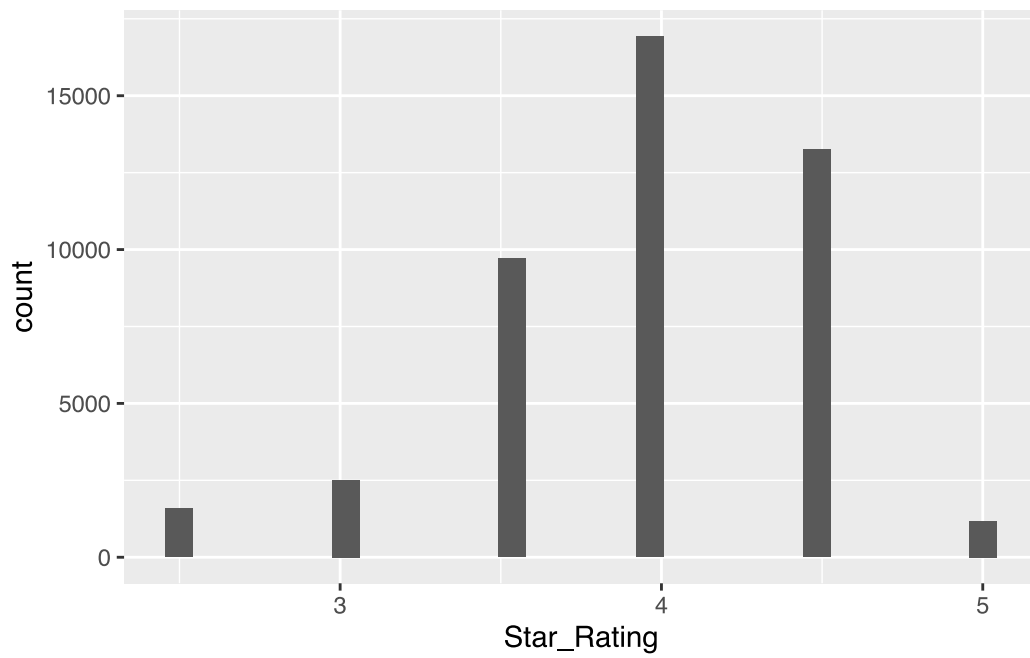
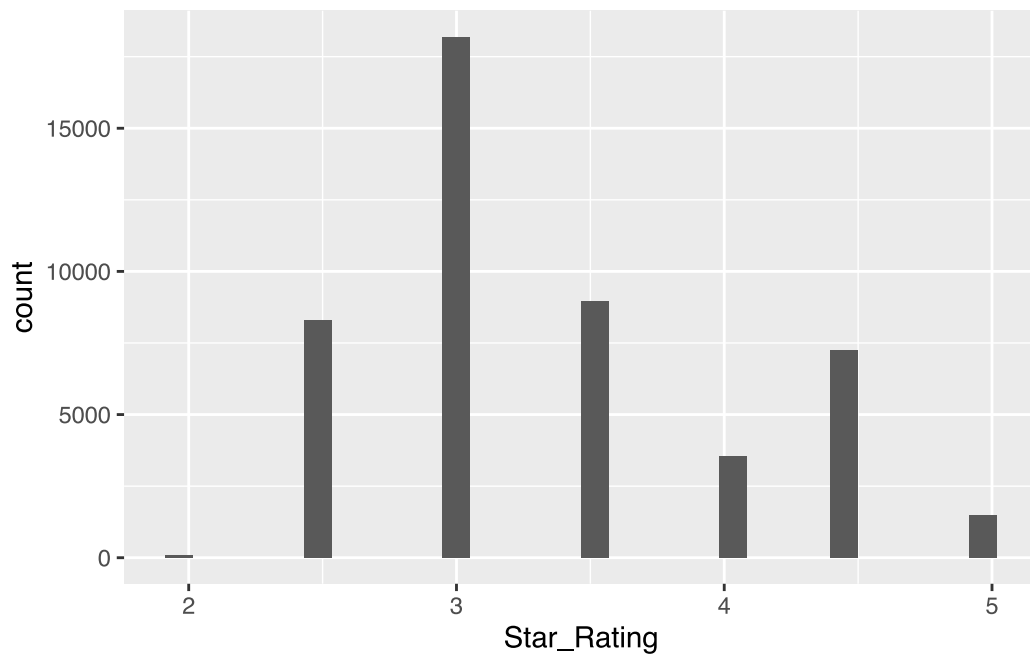
Link to Github

[https://github.com/safiaread/homework\\_4](https://github.com/safiaread/homework_4)

Question 1 It looks like the number of plans is pretty low.

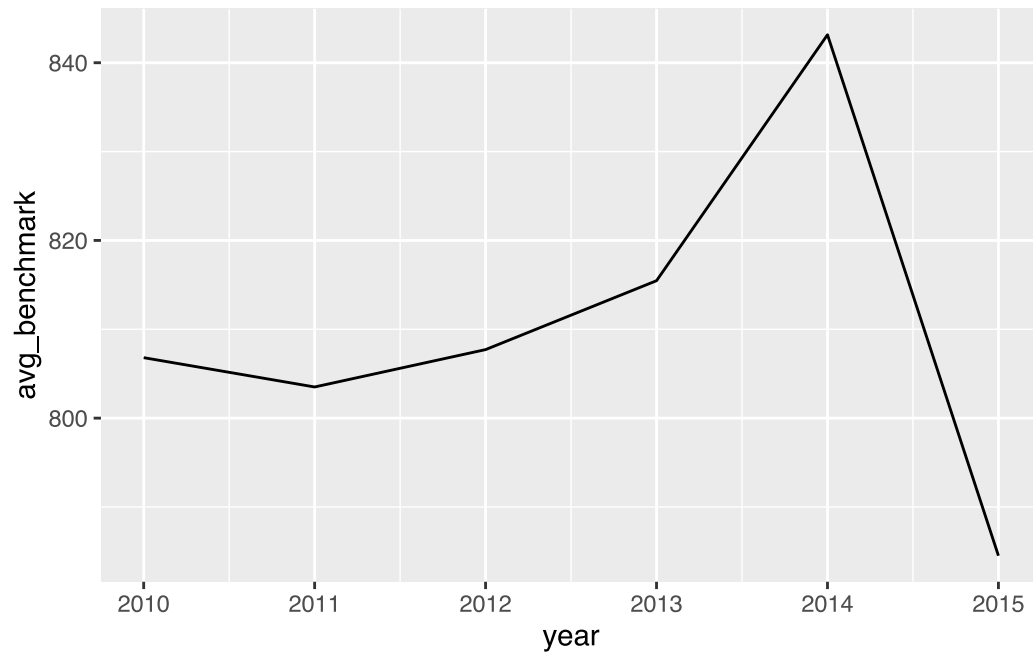
Question 2 The star ratings have increased generally.





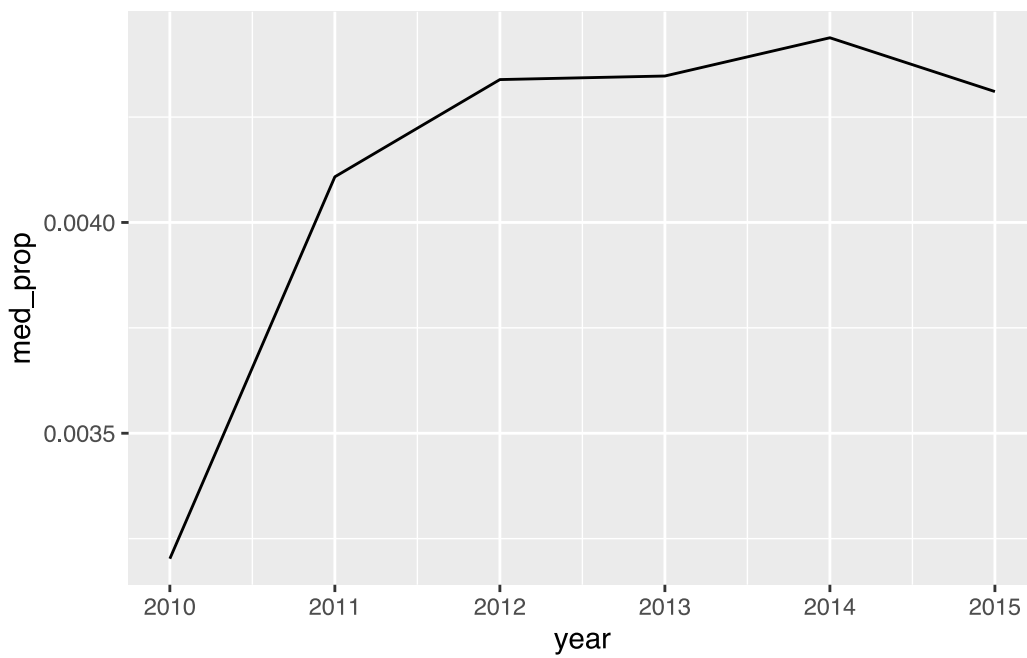
### Question 3

The average benchmark has fallen according to this graph, but I think the variable calculation is off.



#### Question 4

Medicare Advantage has increased in popularity over time. I would expect that to correlate with increased benchmark payments.



#### Question 5

```
# A tibble: 1 × 5
  three three_five four four_five five
  <dbl>     <dbl> <dbl>     <dbl> <dbl>
1 26010     31771 18626     6636 0
```

#### Question 6

```
bandwidth estimates
1      0.2 -0.004074616
2     0.125 0.001394044
3     0.125 0.002113112
```

Sharp RD estimates using local polynomial regression.

```
Number of Obs.          42915
BW type                Manual
Kernel                 Uniform
VCE method              HC0

Number of Obs.          19366      23549
Eff. Number of Obs.     6214       8748
Order est. (p)           1          1
Order bias (q)           2          2
BW est. (h)              0.125      0.125
BW bias (b)              0.125      0.125
rho (h/b)                1.000      1.000
```

```
=====
      Method      Coef. Std. Err.      z    P>|z|      [ 95% C.I. ]
=====
Conventional    0.004      0.001     5.308    0.000    [0.003 , 0.006]
Robust          -          -     -0.841    0.400    [-0.004 , 0.001]
=====
```

```
bandwidth estimates
1      0.2 0.006448002
2     0.125 0.021445087
3     0.125 0.023108404
```

Sharp RD estimates using local polynomial regression.

```
Number of Obs.          59844
BW type                Manual
Kernel                 Uniform
VCE method              HC0
```

```

Number of Obs.          35933      23911
Eff. Number of Obs.     9903       11693
Order est. (p)          1          1
Order bias (q)          2          2
BW est. (h)             0.125      0.125
BW bias (b)             0.125      0.125
rho (h/b)               1.000      1.000

```

Method	Coef.	Std. Err.	z	P> z	[ 95% C.I. ]
Conventional	0.000	0.001	0.442	0.658	[-0.001 , 0.002]
Robust	-	-	-8.759	0.000	[-0.017 , -0.011]

### Question 7

The data is sensitive to the bandwidth and changes the estimate.

Sharp RD estimates using local polynomial regression.

```

Number of Obs.          42915
BW type                  Manual
Kernel                  Uniform
VCE method              HC0

Number of Obs.          19366      23549
Eff. Number of Obs.     6214       8748
Order est. (p)          1          1
Order bias (q)          2          2
BW est. (h)             0.125      0.125
BW bias (b)             0.125      0.125
rho (h/b)               1.000      1.000

```

Method	Coef.	Std. Err.	z	P> z	[ 95% C.I. ]
Conventional	0.004	0.001	5.308	0.000	[0.003 , 0.006]
Robust	-	-	-0.841	0.400	[-0.004 , 0.001]

```

bandwidth  estimates
1          0.1 0.002737363
2          0.12 0.003809948
3          0.13 0.005797619

```

```
4    0.14 0.005015187
5    0.15 0.004379916
```

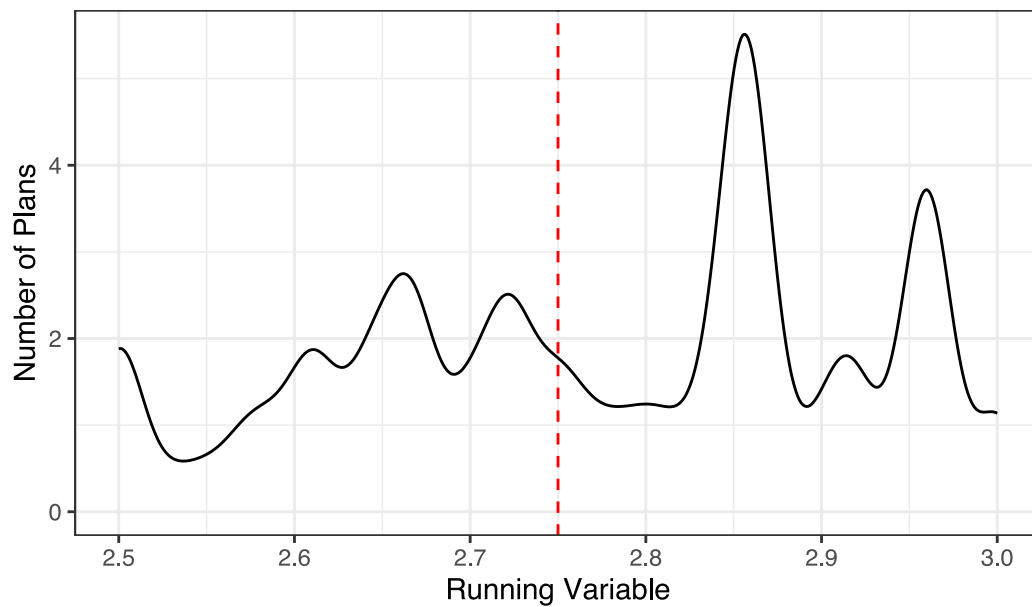
```
bandwidth estimates
1    0.1 -0.0081092277
2    0.12 -0.0033249992
3    0.13 0.0002628067
4    0.14 -0.0007741078
5    0.15 -0.0007621881
```

#### Question 8

It looks like the data is clustered aaround the threshold.

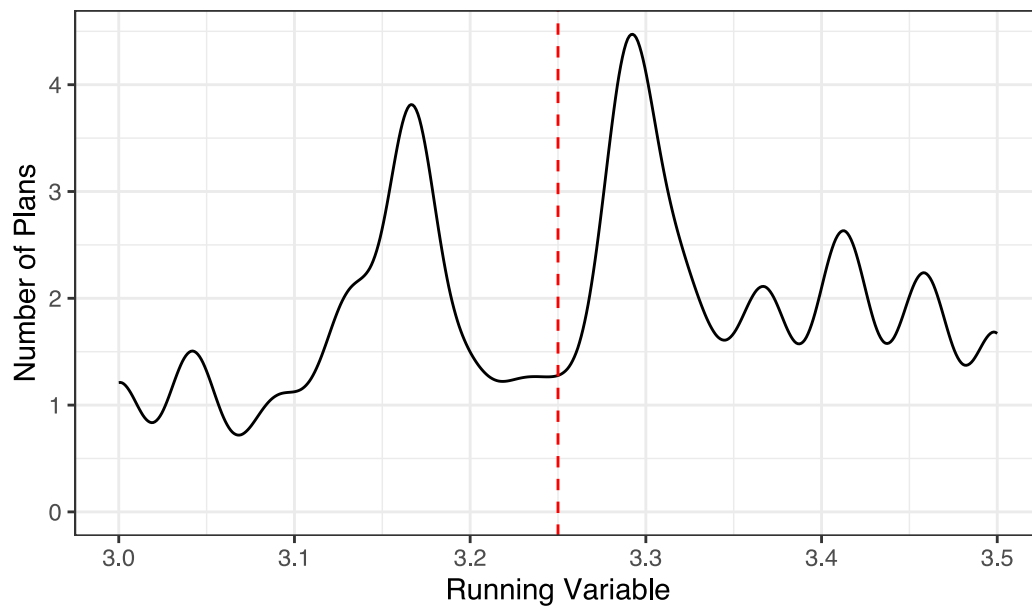
```
Warning: Removed 202358 rows containing non-finite values (`stat_density()`).
```

Distribution of Raw Scores for 2.75 Cutoff



```
Warning: Removed 207873 rows containing non-finite values (`stat_density()`).
```

Distribution of Raw Scores for 3.25 Cutoff



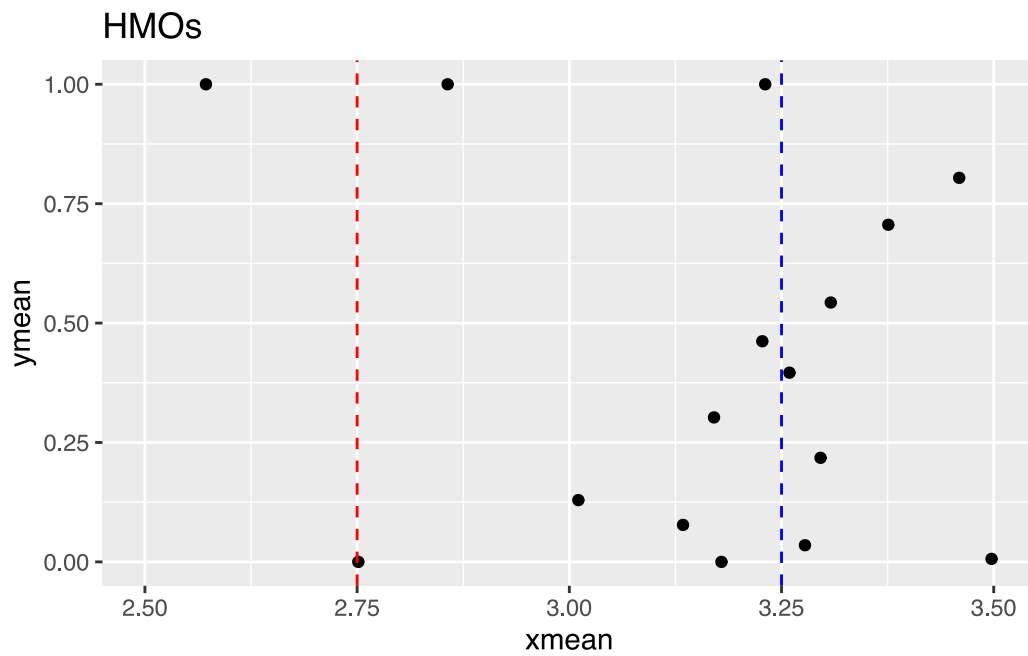
#### Question 9

From my binned scatterplots, we can see some covariate imbalance around the proportion of HMO plans, with a higher proportion of HMO's being above the 3.5 threshold. For the Part D plans, there seems to be a lower proportion of them past the 3.5 threshold. There isn't a lot of data around the 3 star threshold.

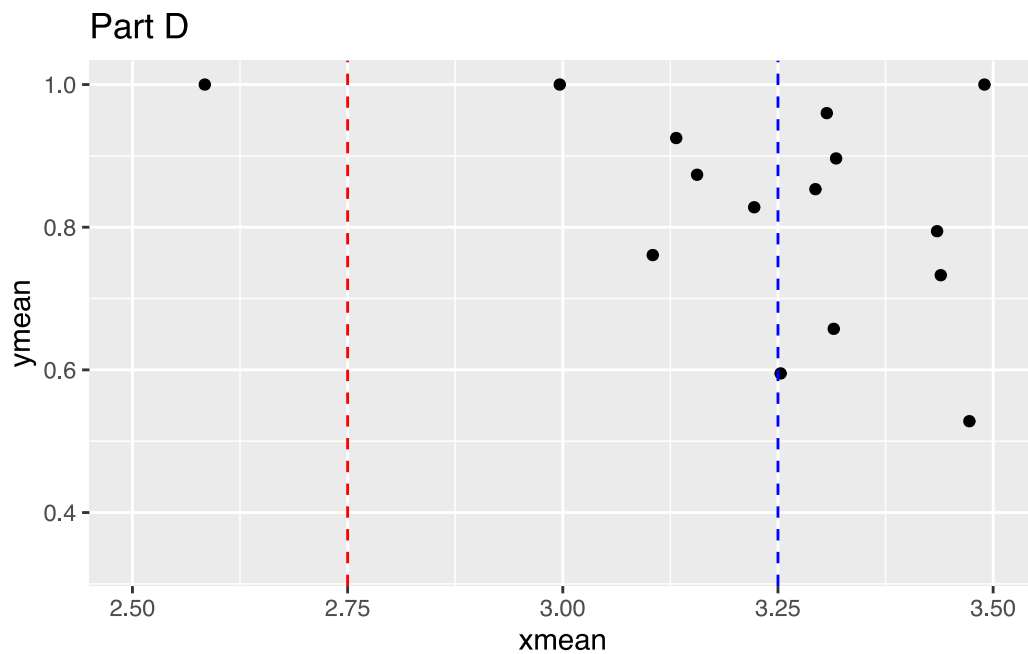
```
Warning: Unknown or uninitialised column: `dummy_partd`.
```

```
NULL
```

```
Warning: Removed 14 rows containing missing values (`geom_point()`).
```



Warning: Removed 5 rows containing missing values (``geom_point()``).



#### Question 10

Increasing star rating caused enrollments to decrease slightly over estimates with small bandwidths. I'm not sure why, maybe my estimates are off.