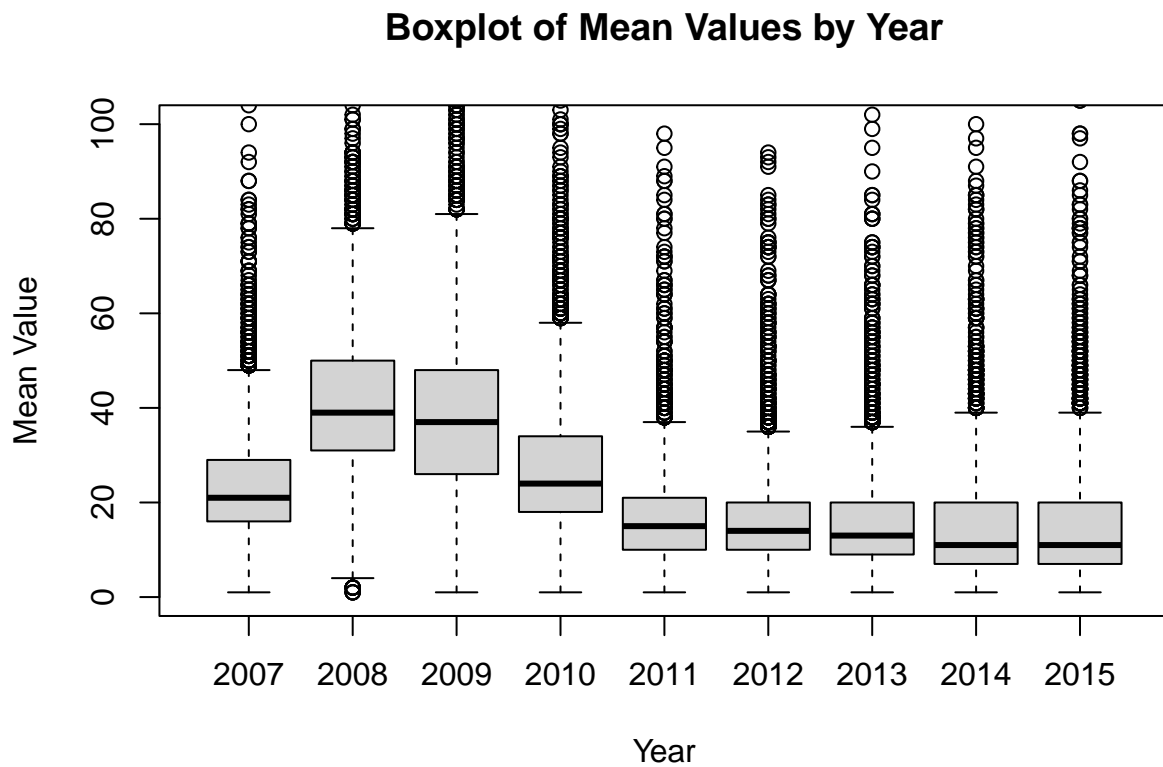


# 470 Homeowrk 4

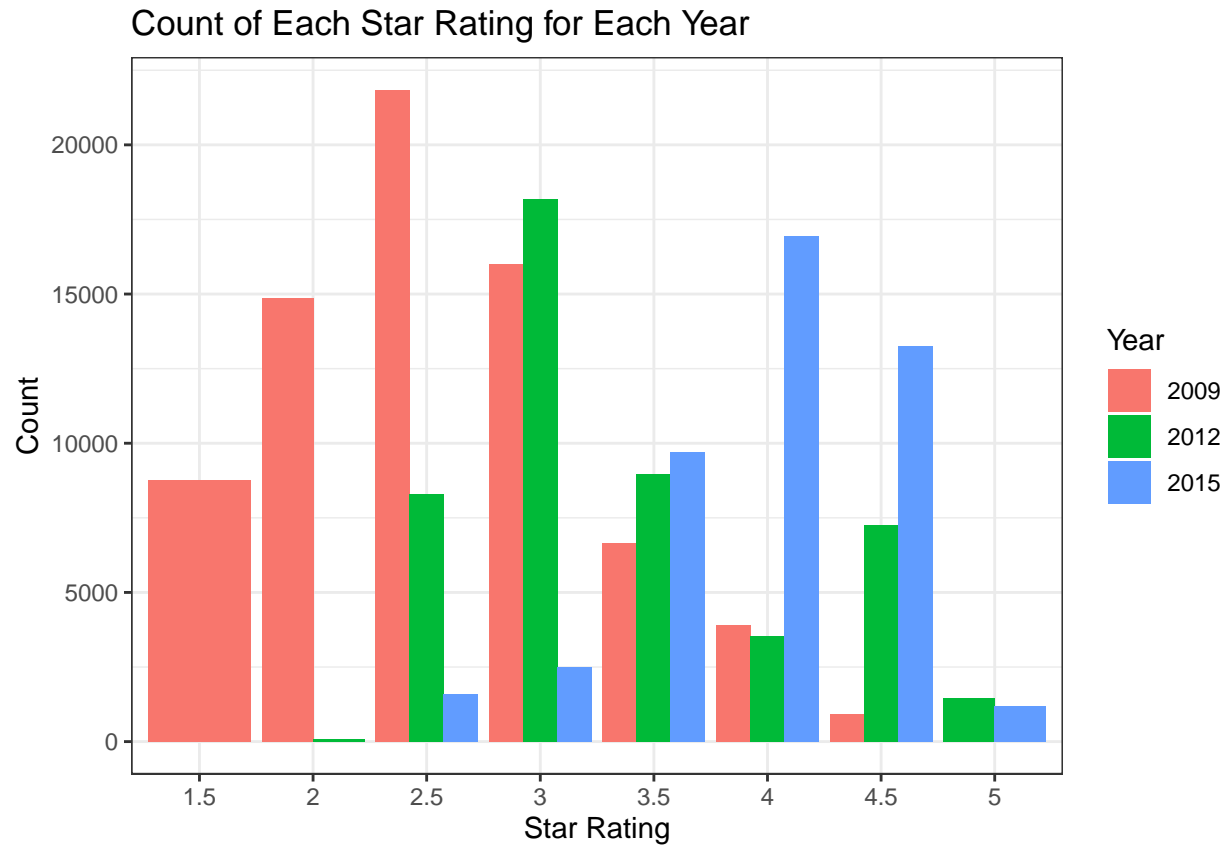
Sam Cohen

2023-04-10

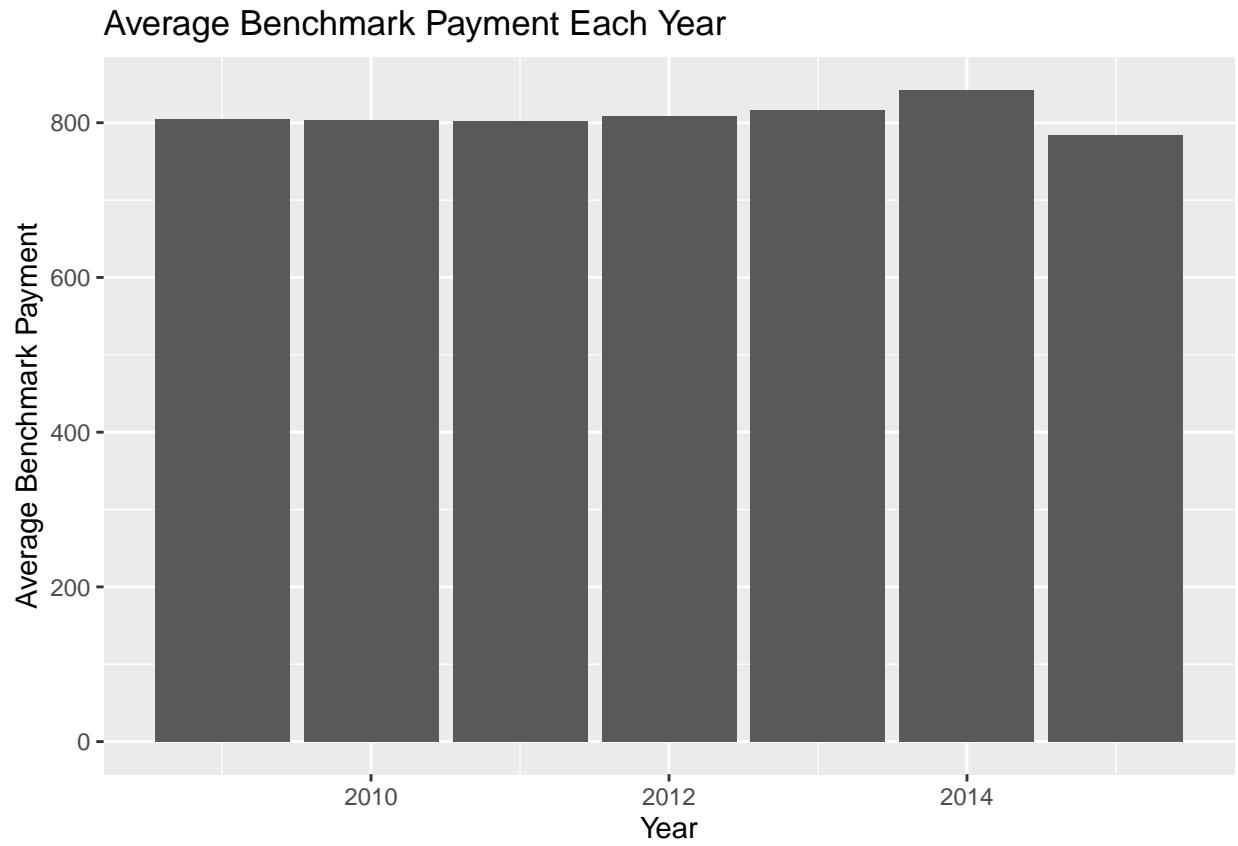
1



This seems to be a good number of plans over the years. There are definitely some counties with “too many” plans, at least indicated by some research... Overall though, those are mostly outliers and there is enough choice for consumers without being overly limited, although in later years their choice does go down to more concerning levels.

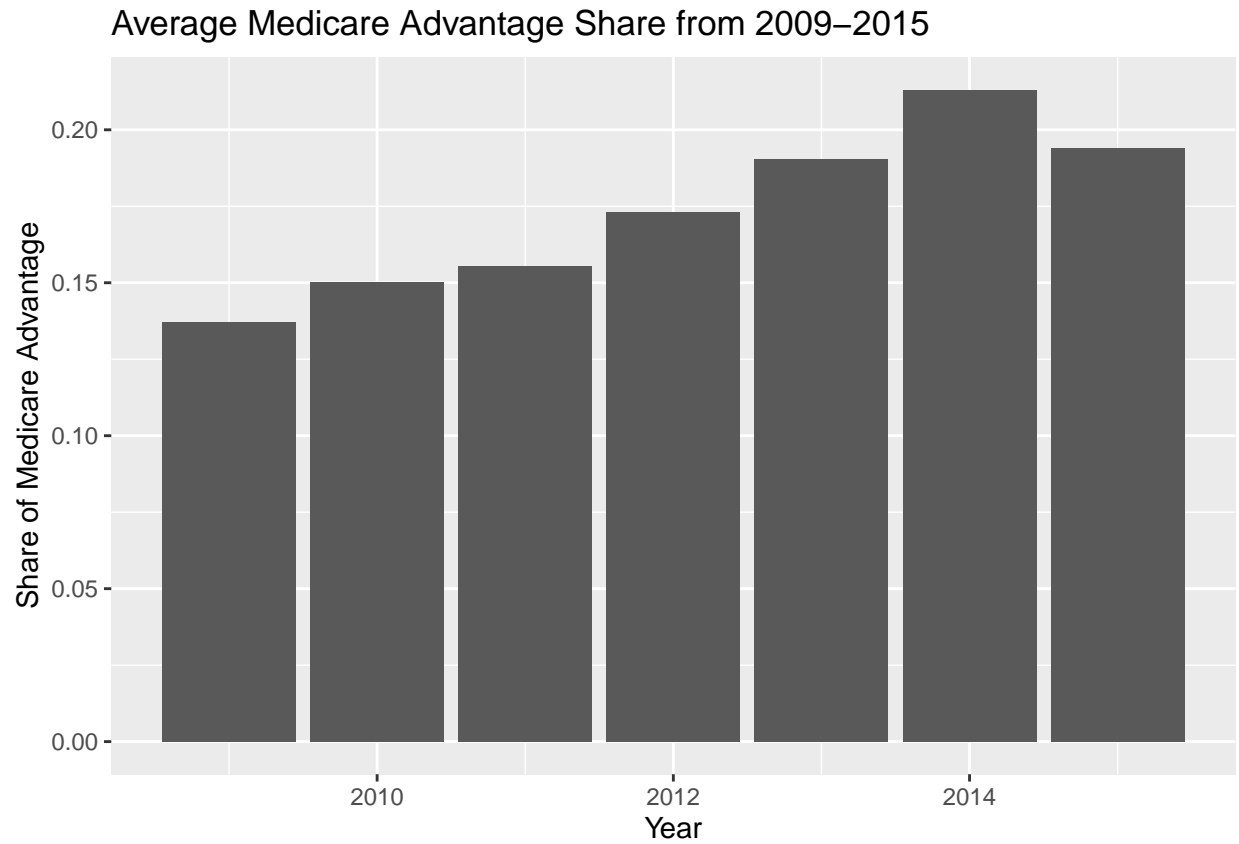


As time goes on, the count of 3.5 plans and higher increase. Overall, this data seems to indicate the average star rating has increased over this time.



From my graph, it seems the MA rate for benchmark payments has not changed very much over the years, but there was a slight increase in the trend of the payments.

4



This data shows that the Medicare Advantage has increased in popularity over the years, directly correlating with the change in payments.

## ATE Questions

1

Star_Rating	rounded
3.0	2278
3.5	1157
4.0	767
4.5	0
5.0	0

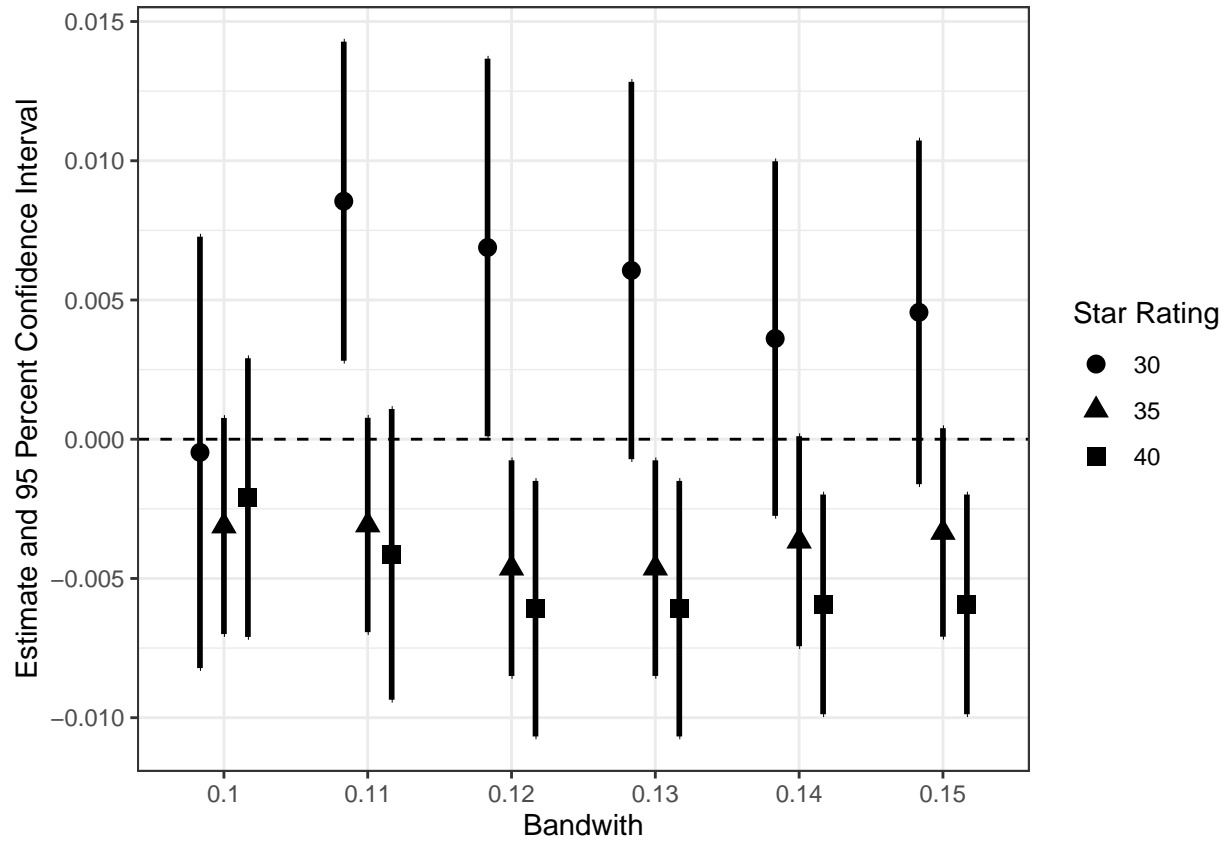
2

Because there were no raw ratings that I calculated that were then rounded to a 4.5, I did not run an RD estimate for that effect, but instead I ran one on the effect of rounding to 2.5 stars.

	Star Rating 2.5	Star Rating 3	Star Rating 3.5	Star Rating 4
Treatment Effect	0.010 (0.002)	0.006 (0.003)	0.013 (0.003)	-0.003 (0.003)
Num.Obs.	3241	1953	1578	1286
R2	0.010	0.007	0.015	0.012
R2 Adj.	0.009	0.006	0.014	0.010
AIC	-18 563.6	-9844.9	-6918.5	-5681.5
BIC	-18 539.2	-9822.6	-6897.1	-5660.8
Log.Lik.	9285.780	4926.469	3463.256	2844.739
F	15.834	6.404	11.941	7.757
RMSE	0.01	0.02	0.03	0.03

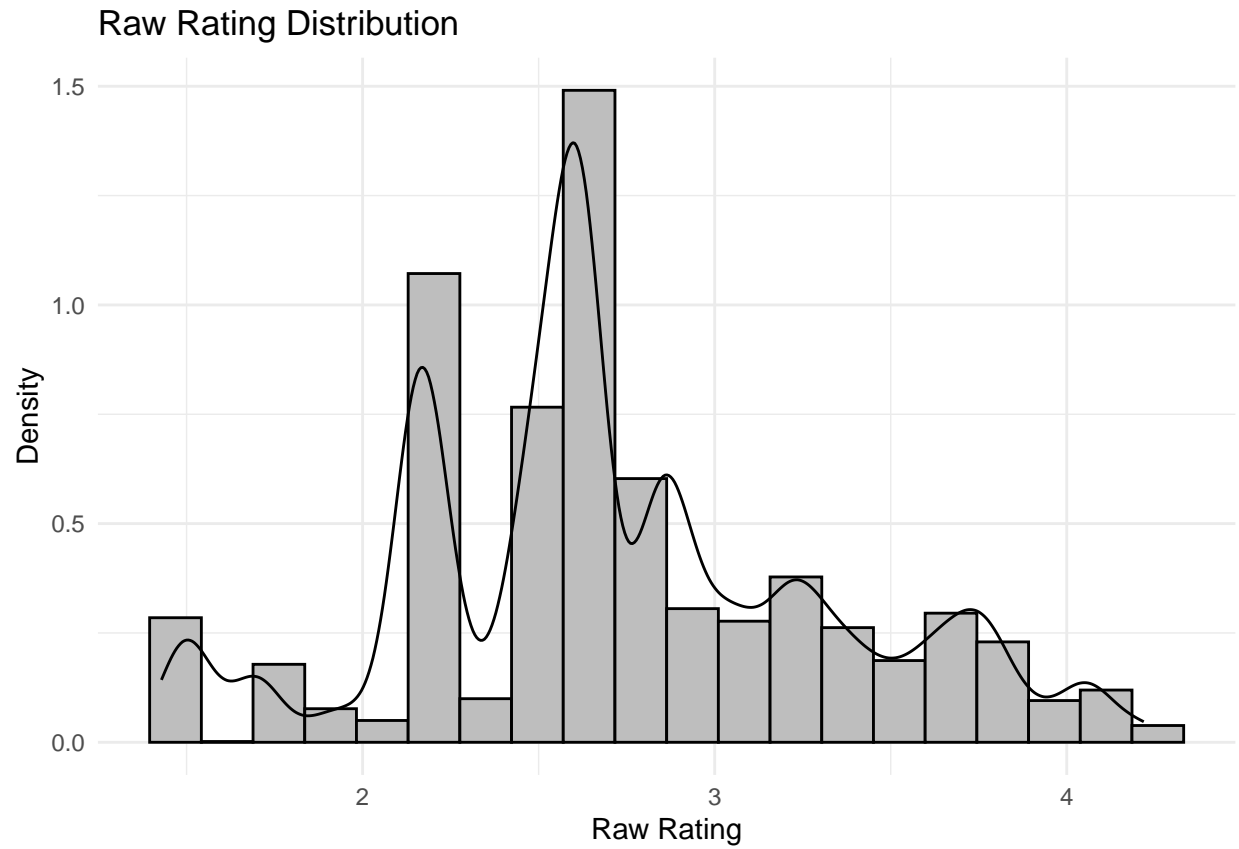
### 3

After an initial change from bandwidth from .1 to .11, all of the estimates seem fairly constant. This seems to imply that a change in the bandwidth should not drastically affect the estimators.



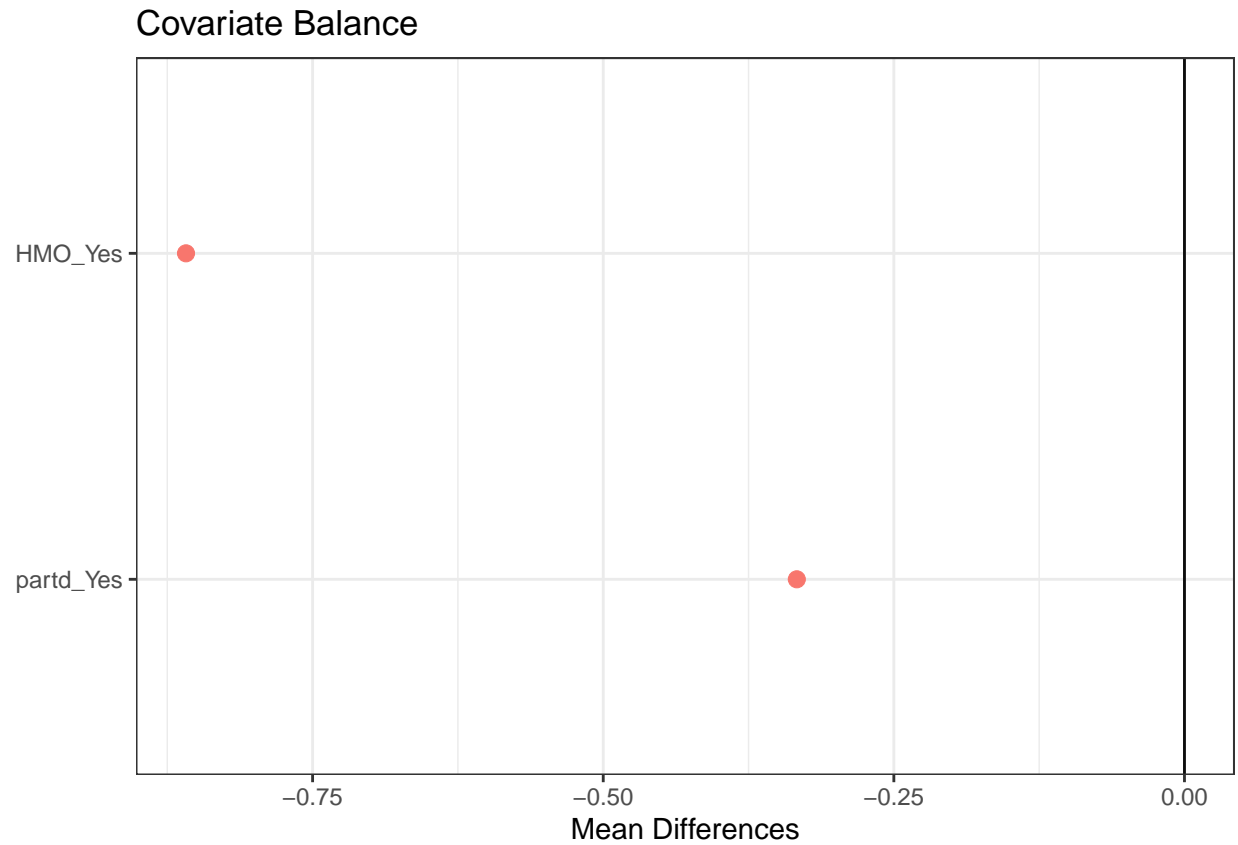
### 4

Judging from the plot, it does seem that contracts are planned to reach the threshold for the next jump and that is all. As you can see, there are many plans here right below 2.75, thus rounding down to 2.5 rather than 3. If we were to see manipulation it would be more likely to see a larger distribution right at or above 2.75. Overall though, the distribution is not smooth which would then seem to indicate this data might not be the best for an RD approach.



## 5

The mean differences for whether a plan is an HMO or has part d coverage are quite small. This then implies there are not significant differences in these plan characteristics between plans that are rounded up to 3 or down to 2.5



## 6

Overall, it is difficult to show exactly how rounding affects market share. For being rounded up to 3 stars seems to have a positive effect but anything higher seems to have a negative effect. These conflicting results could be due to the fact this data was not the best suited for this kind of RD approach, or at least in the way I did it. The r squared value was also quite small, indicating that whatever factor rounding up has, it is likely a small factor overall.