Homework 4

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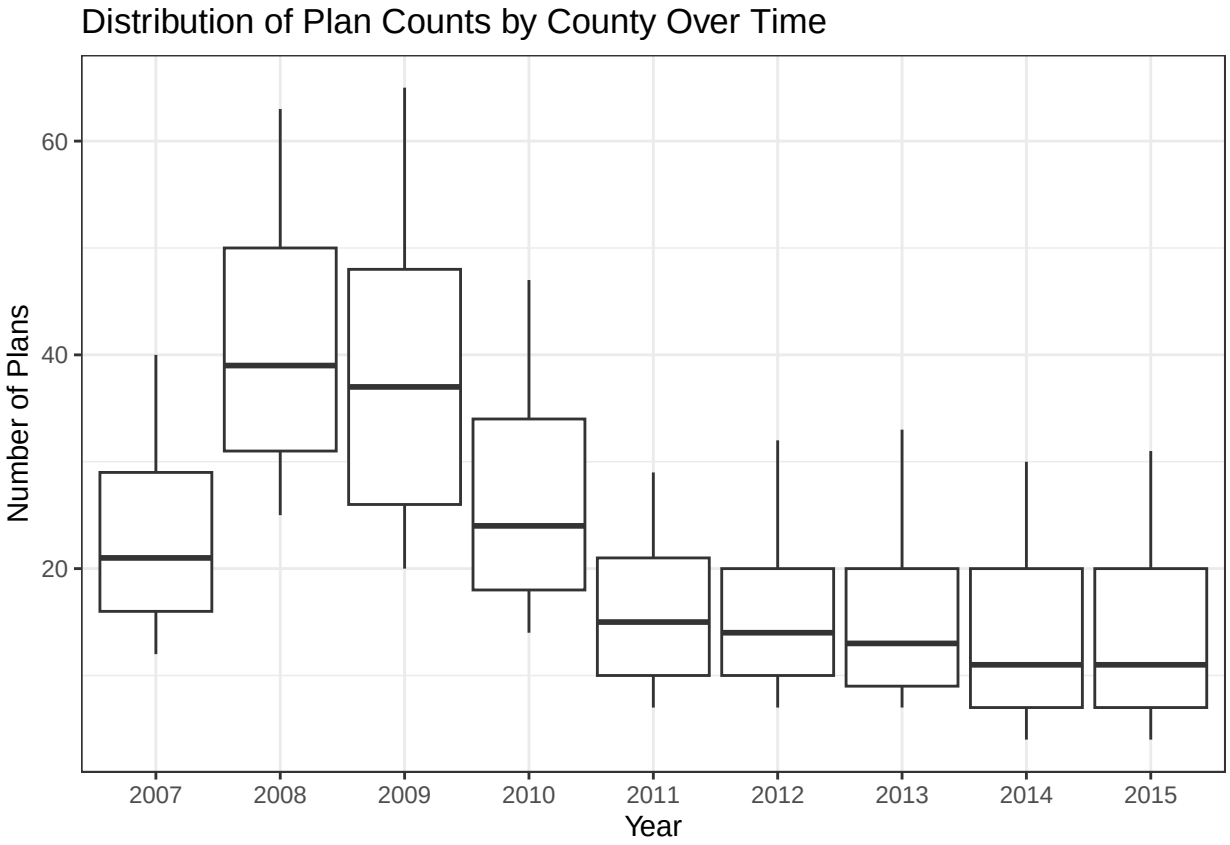
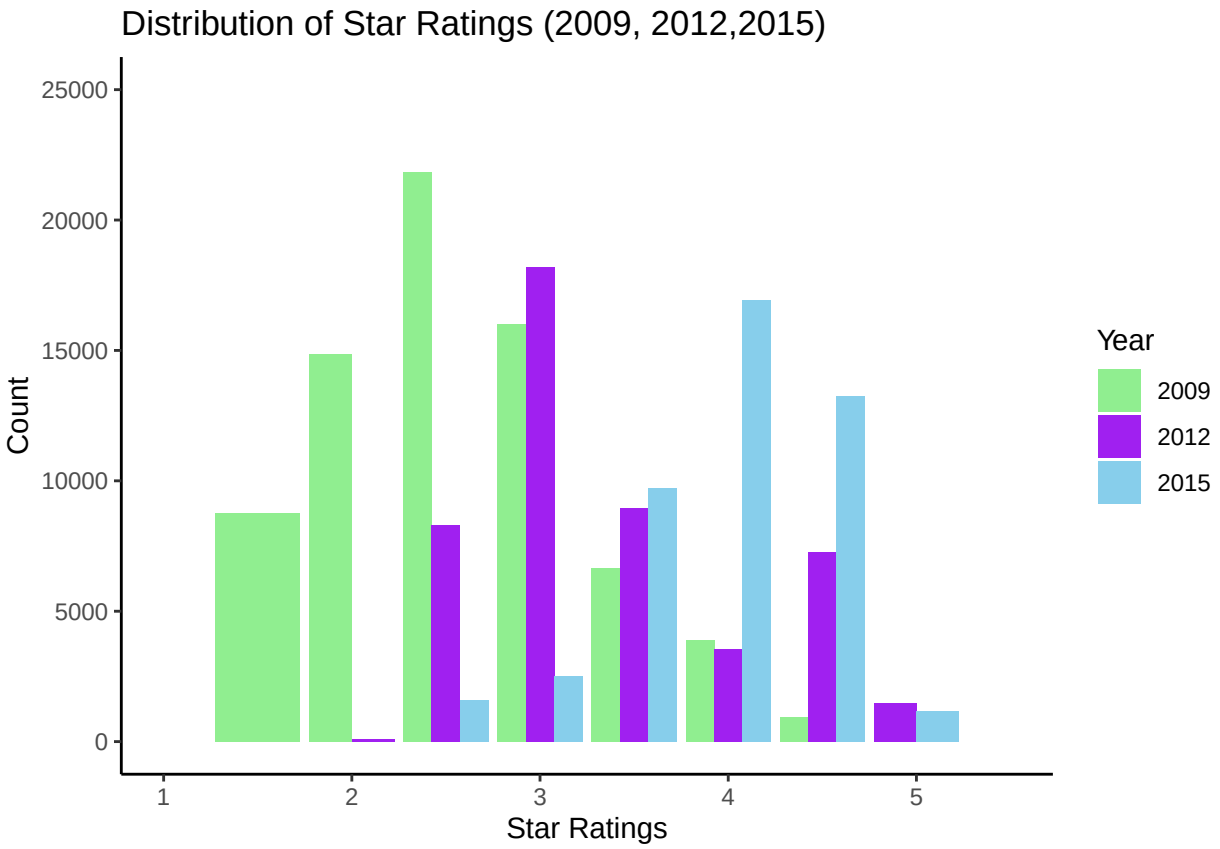
Question 1



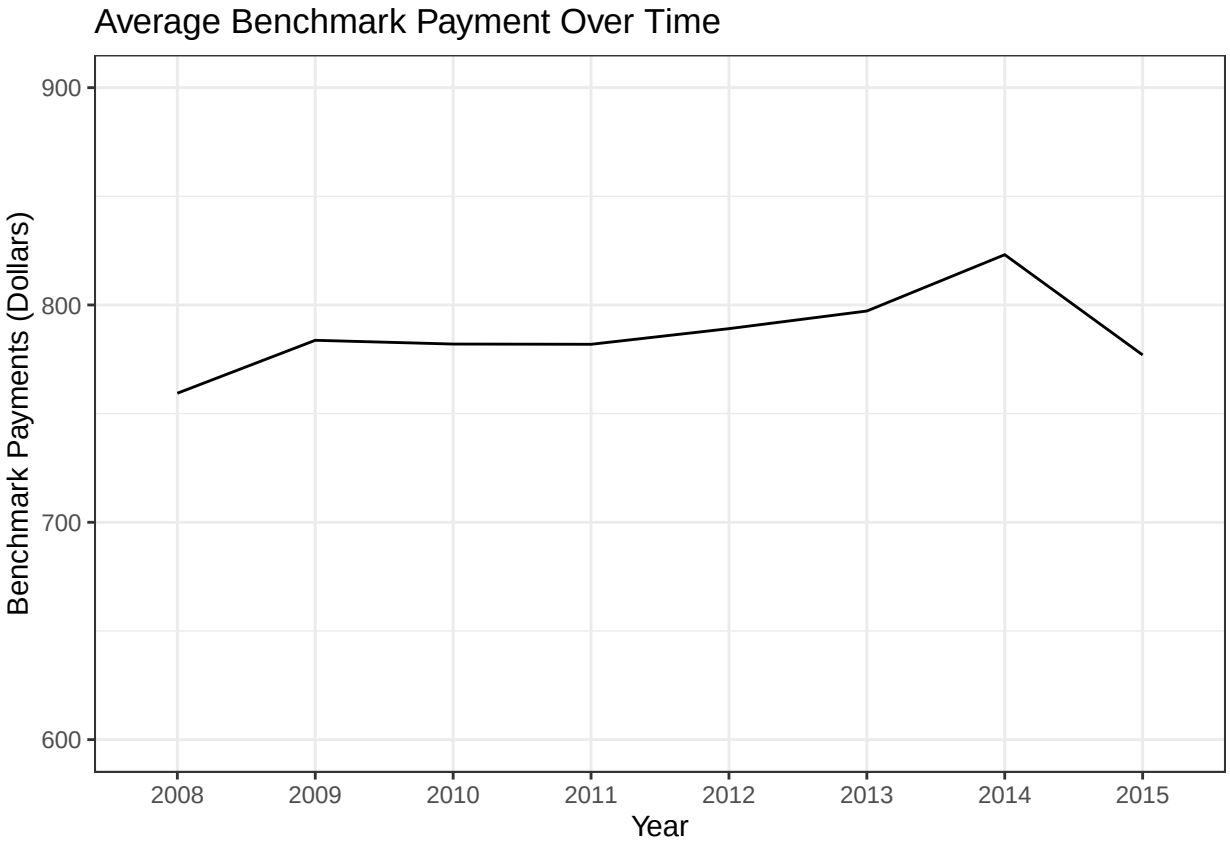
These ranges of plan counts seems a little low per county; I assumed each county would have 20-50 plans to choose from, on average.

Question 2



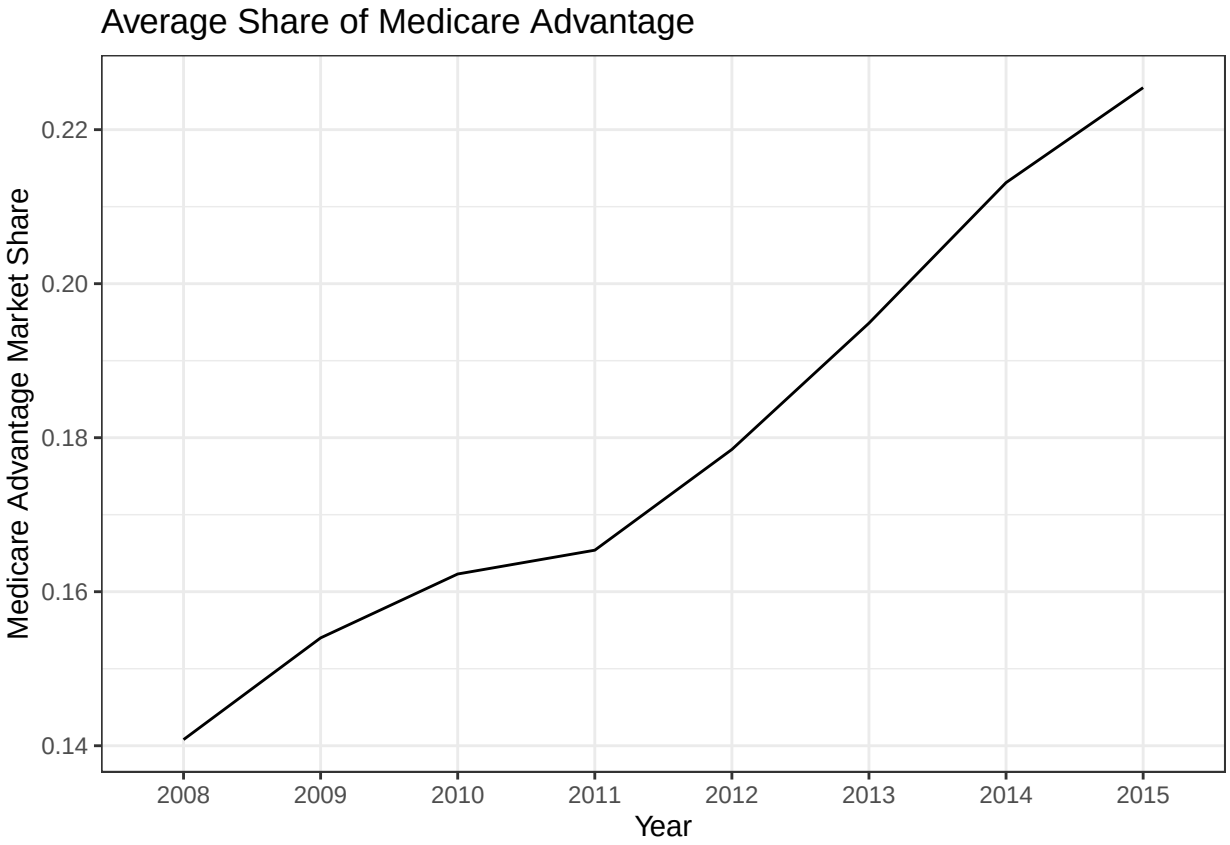
Over time, the distribution of higher star ratings (ratings of 4-5) has increased. Over the years, there is a lower frequency of low ratings and a higher frequency of high ratings (years 2012 and 2015 compared to 2009).

Question 3



Over the years, the average benchmark payment has risen by ~50 dollars and then dipped by ~30 dollars, overall decreasing to ~$780.

Question 4



The share of Medicare Advantage has increased in popularity, gradually increasing its market share from 2008 to 2015 by ~8%. This trend correlates with the increase in benchmark payments, until the 2014-2015 year, where there is an inverse correlation.

Question 5

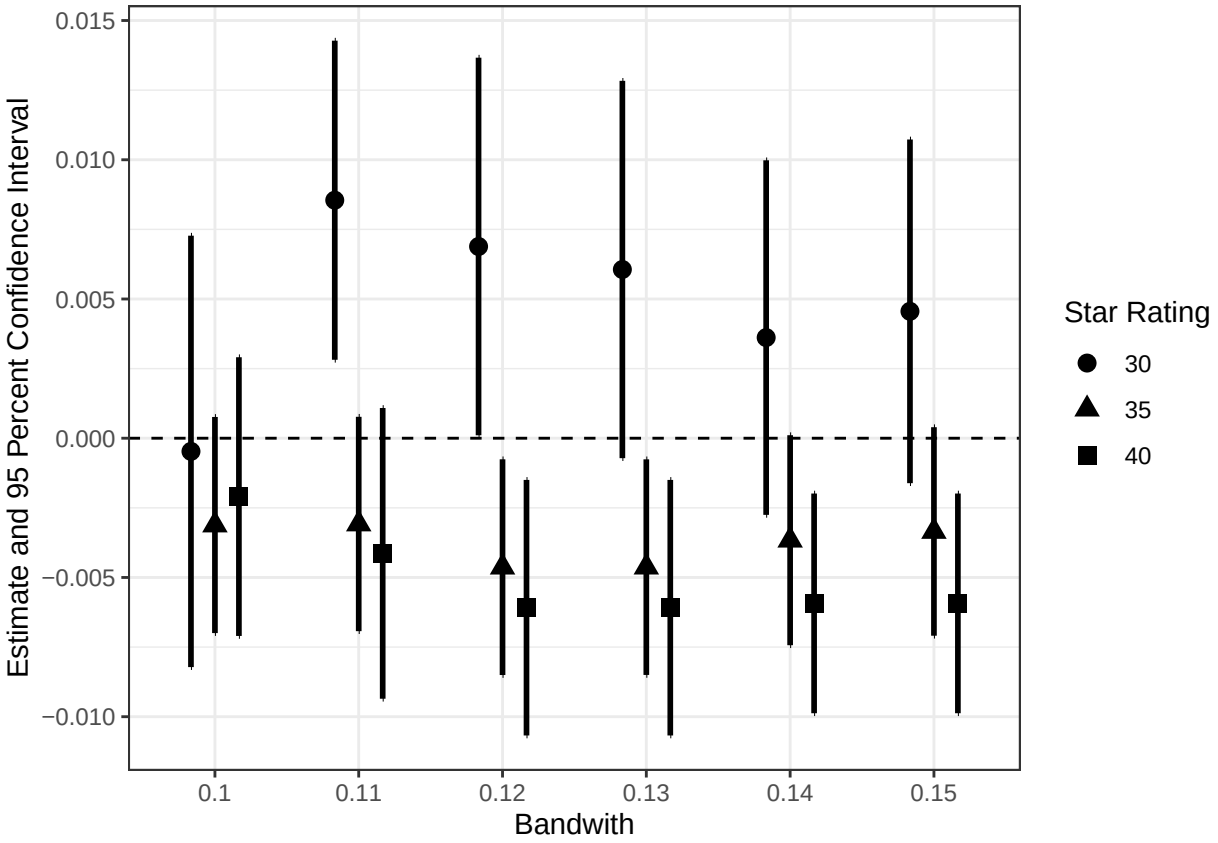
Star_Rating	rounded
3.0	2278
3.5	1157
4.0	767
4.5	0

Question 6

Table 1: Estimates

	Star 3.0	Star 3.5	Star 4.0	Star 4.5
Treatment	0.006	−0.005	−0.006	0.003
	(0.003)	(0.002)	(0.002)	(0.002)
score	−0.051	0.039	0.061	−0.070
	(0.018)	(0.015)	(0.014)	(0.020)
N	1953	1578	1286	573
R^2	0.01	0.00	0.02	0.02

Question 7



The findings are semi-sensitive to the choice of bandwidth; if the bandwidth is too small or too large (beginning and end of the graph) the results are inaccurate as the lower-end is biased and the higher-end extrapolates the data as it is far away from the threshold. The middle bandwidth values are optimal.

Question 8

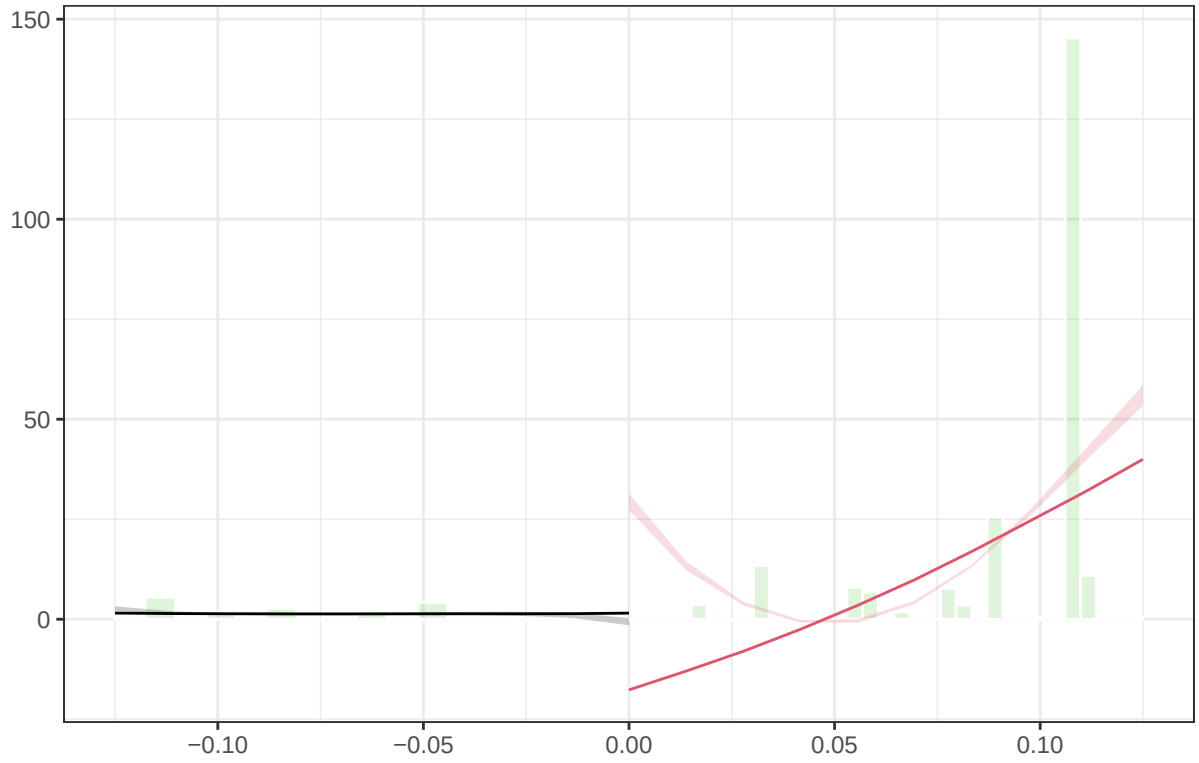


Figure 1: Density Plot for 2.5 v. 3-star rating

Contracts do not appear to manipulate the running variable. Before and after the relevant threshold values, the running variable seems to remain overall consistent, but this may be due to few observations in the dataset.

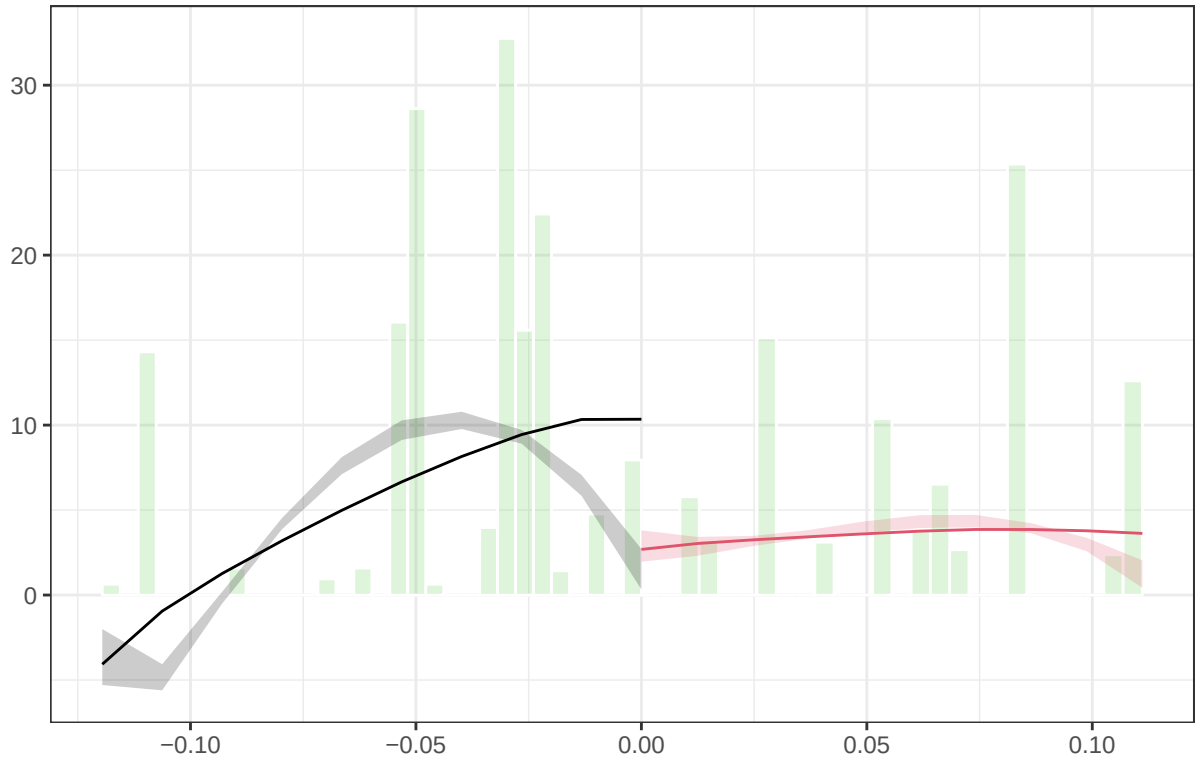


Figure 2: Density Plot for 3.0 v. 3.5-star rating

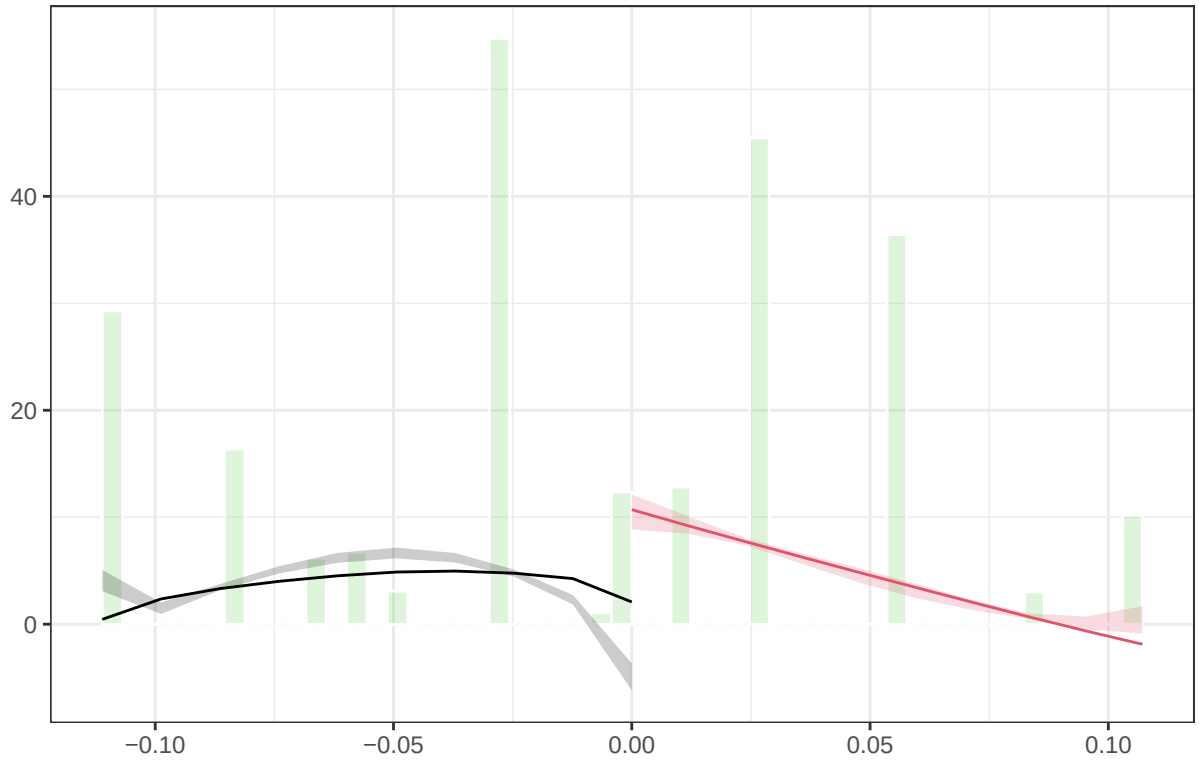
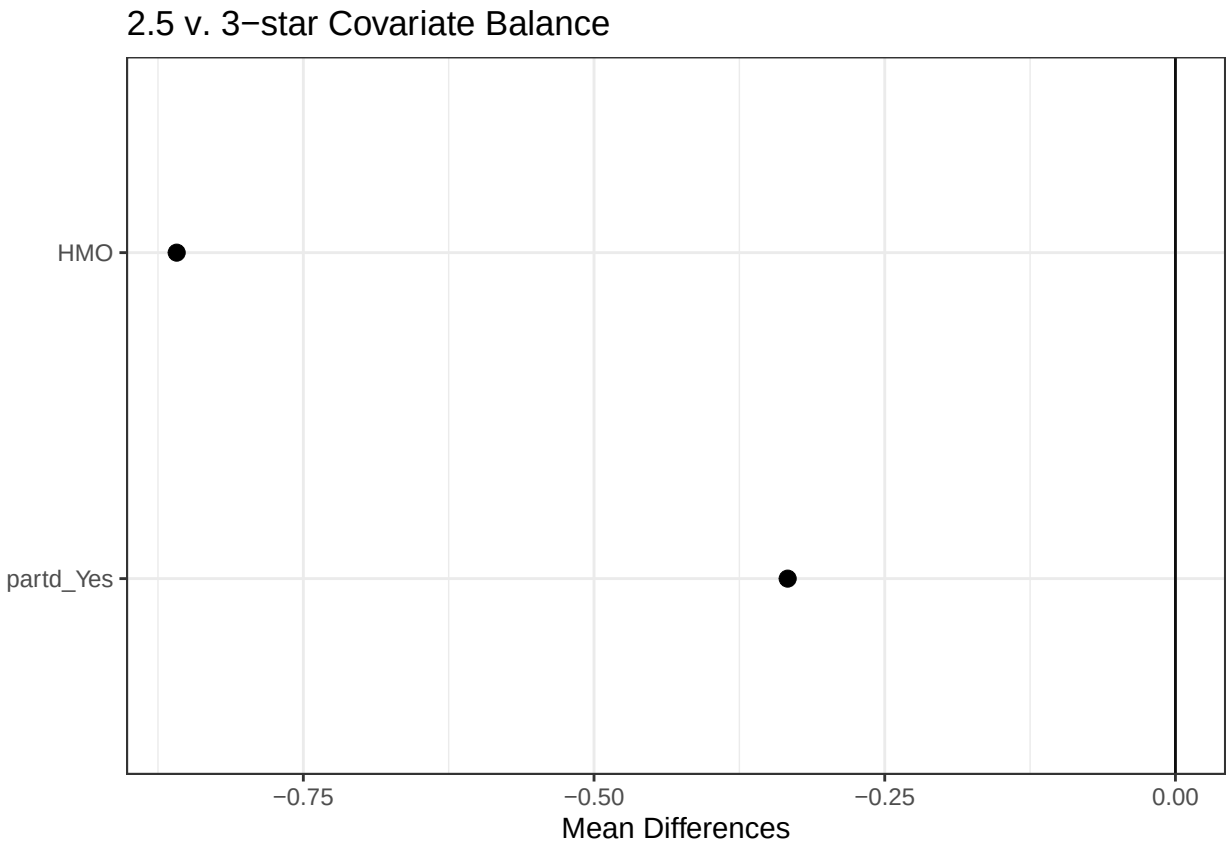
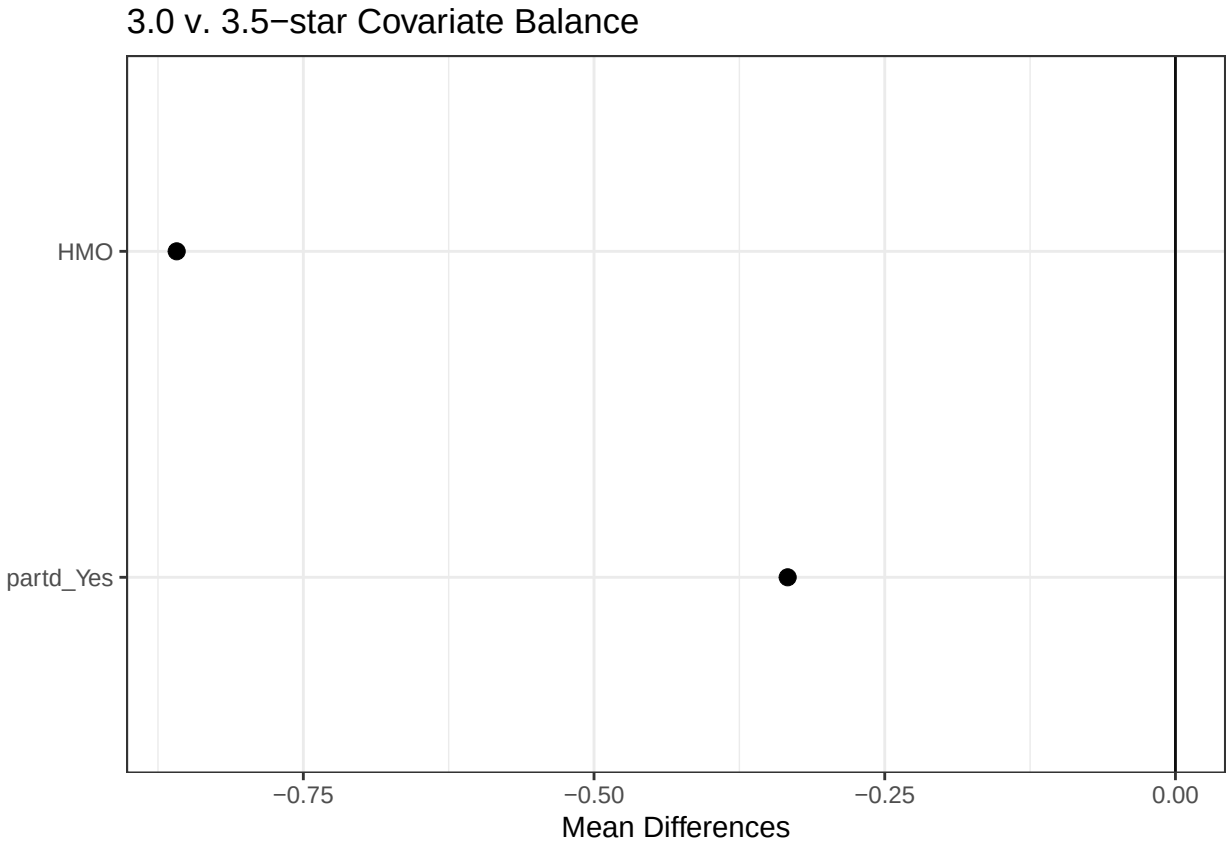
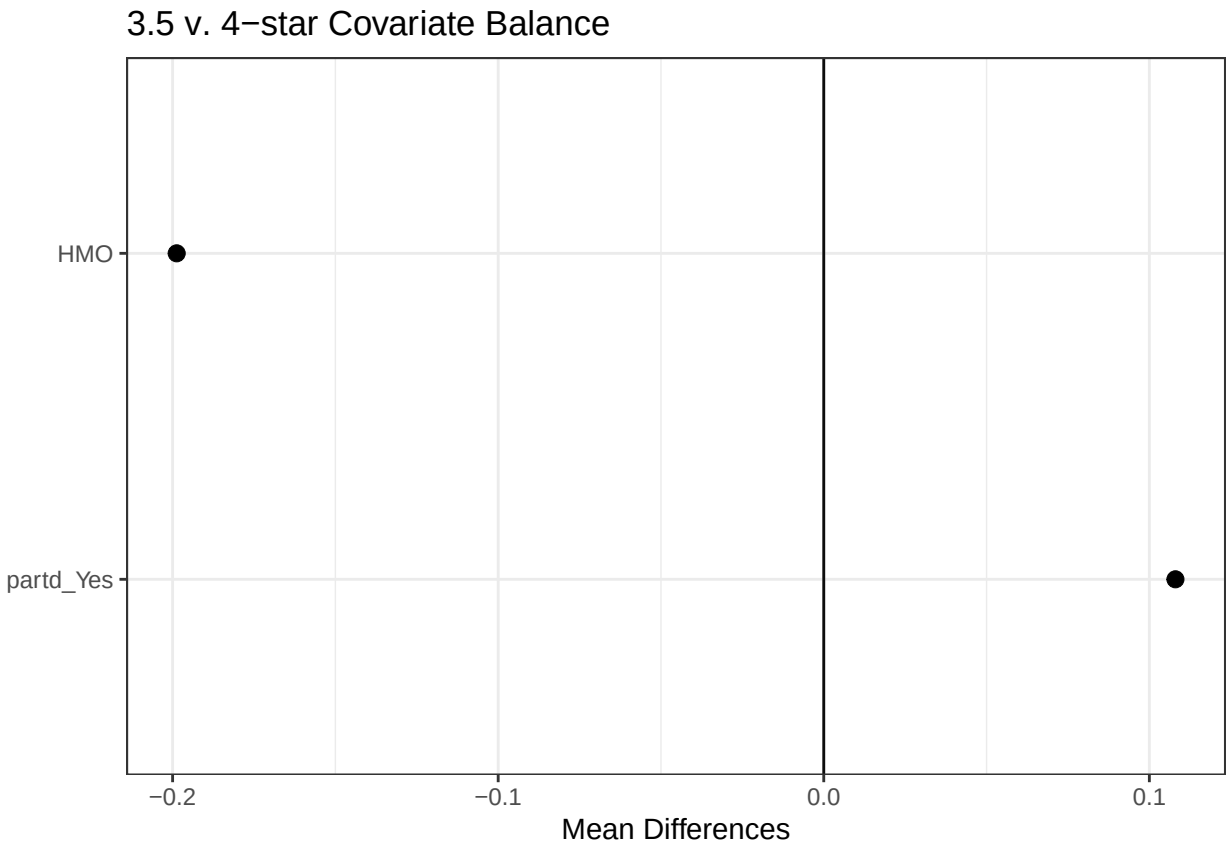


Figure 3: Density Plot for 3.5 v. 4-star rating

Question 9


2.5 v. 3−star Covariate Balance
HMO
partd_Yes
−0.75
−0.50
−0.25
0.00
Mean Differences


3.0 v. 3.5−star Covariate Balance
HMO
partd_Yes
−0.75
−0.50
−0.25
0.00
Mean Differences



From these graphs, I find that the difference in means between HMO and Part D plans are not very high, across all of the star rating comparisons. The trend between positive and negative mean differences between the two is also consistent across graphs.

Question 10

With the results in ATE 1-4, I find that increasing star ratings overall led to increases in enrollment. I see that plans with low ratings have a positive effect from high star ratings and being rounded up, and inversely plans with high ratings receive a negative effect from low star ratings.