

Homework 4

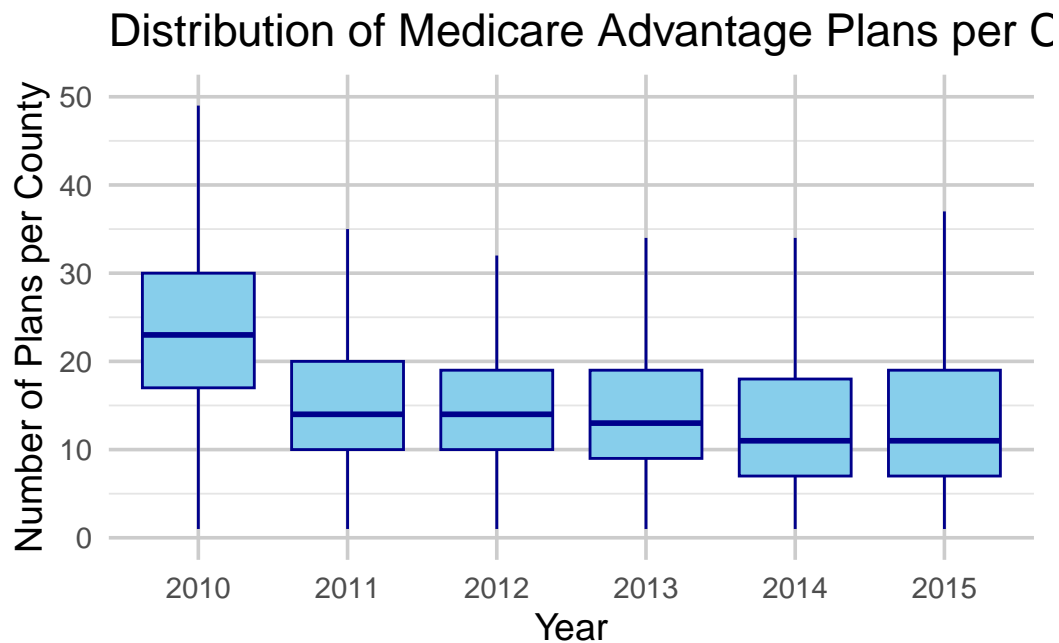
ECON 470, Spring 2025

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Here is a link to my repository: `{https://github.com/bemur3/hwk4}`

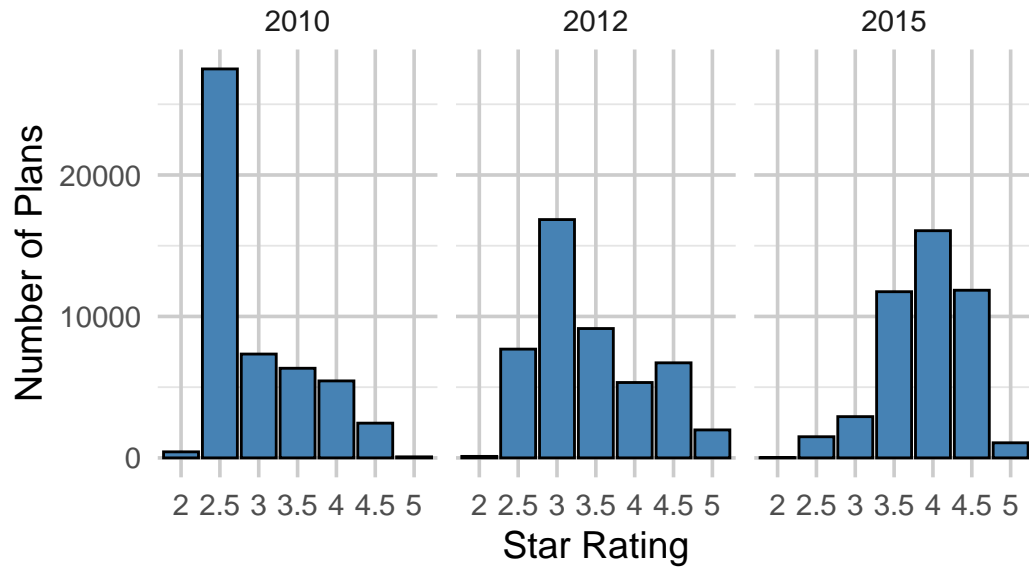
1. Remove all SNPs, 800-series plans, and prescription drug only plans (i.e., plans that do not offer Part C benefits). Provide a box and whisker plot showing the distribution of plan counts by county over time. Do you think that the number of plans is sufficient, too few, or too many?

Warning: Removed 696 rows containing non-finite outside the scale range (``stat_boxplot()``).

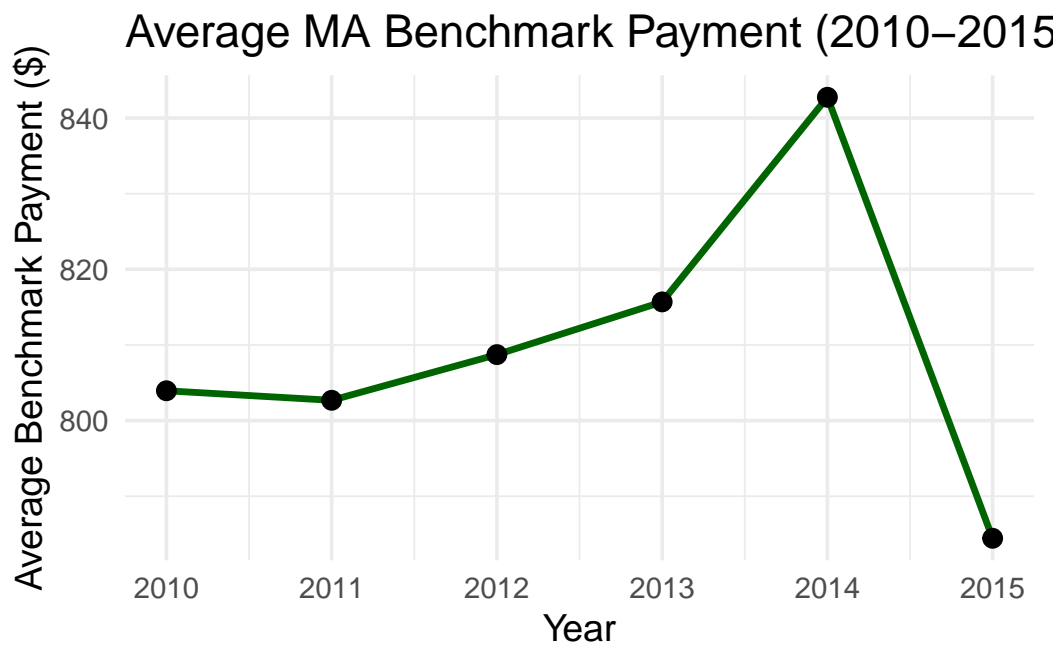


2. Provide bar graphs showing the distribution of star ratings in 2010, 2012, and 2015. How has this distribution changed over time?

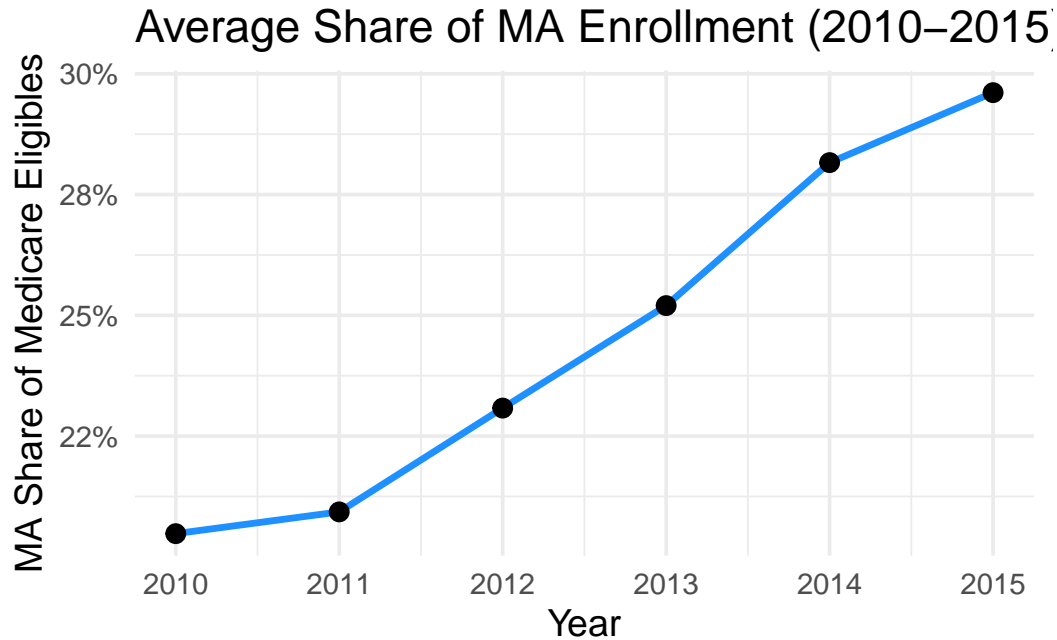
MA Part C Star Rating Distributions (2010, 2012, 2015)



3. Plot the average benchmark payment over time from 2010 through 2015. How much has the average benchmark payment risen over the years?



4. Plot the average share of Medicare Advantage (relative to all Medicare eligibles) over time from 2010 through 2015. Has Medicare Advantage increased or decreased in popularity? How does this share correlate with benchmark payments?



5. Calculate the running variable underlying the star rating. Provide a table showing the number of plans that are rounded up into a 3-star, 3.5-star, 4-star, 4.5-star, and 5-star rating.

Table 1: Number of Plans Rounded Up to Each Star Rating(2010)

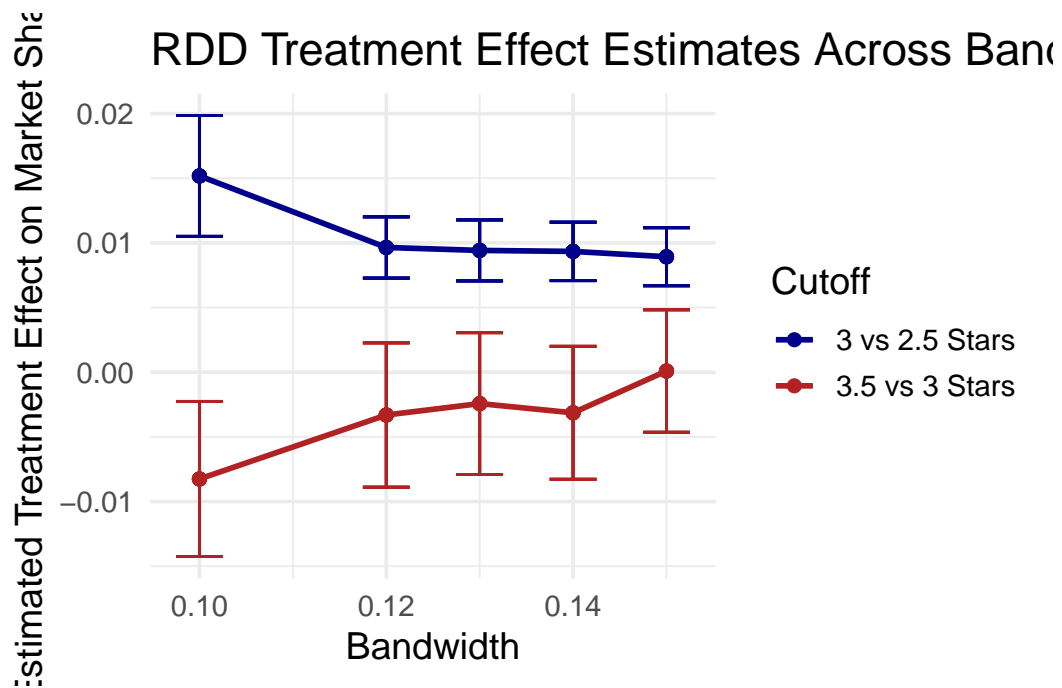
Star_Rating	rounded.up
3.0	1346
3.5	1555
4.0	1402
4.5	176
5.0	26

6. Using the RD estimator with a bandwidth of 0.125, provide an estimate of the effect of receiving a 3-star versus a 2.5 star rating on enrollments. Repeat the exercise to estimate the effects at 3.5 stars, and summarize your results in a table.

Table 2: RDD Regression Summary (Bandwidth = 0.125)

Cutoff	Intercept	Rounded Up	Running Score	Num Obs	R-squared	RMSE
3 vs 2.5 Stars	0.009	0.010	-0.024	4483	0.019	0.015
3.5 vs 3 Stars	0.017	-0.003	0.022	1663	0.001	0.026

7. Repeat your results for bandwidths of 0.1, 0.12, 0.13, 0.14, and 0.15 (again for 3 and 3.5 stars). Show all of the results in a graph. How sensitive are your findings to the choice of bandwidth?



8. Examine (graphically) whether contracts appear to manipulate the running variable. In other words, look at the distribution of the running variable before and after the relevant threshold values. What do you find

