

Submission3-HW4

Research Methods, Spring 2024

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<https://github.com/carolinezhansen/medicare1/tree/main>

Answers for Homework 4: Submission 1

Problem 1

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? @problem1

Problem 2

2. 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? @problem2

Problem 3

3. Plot the average benchmark payment over time from 2010 through 2015. How much has the average benchmark payment risen over the years? @problem3

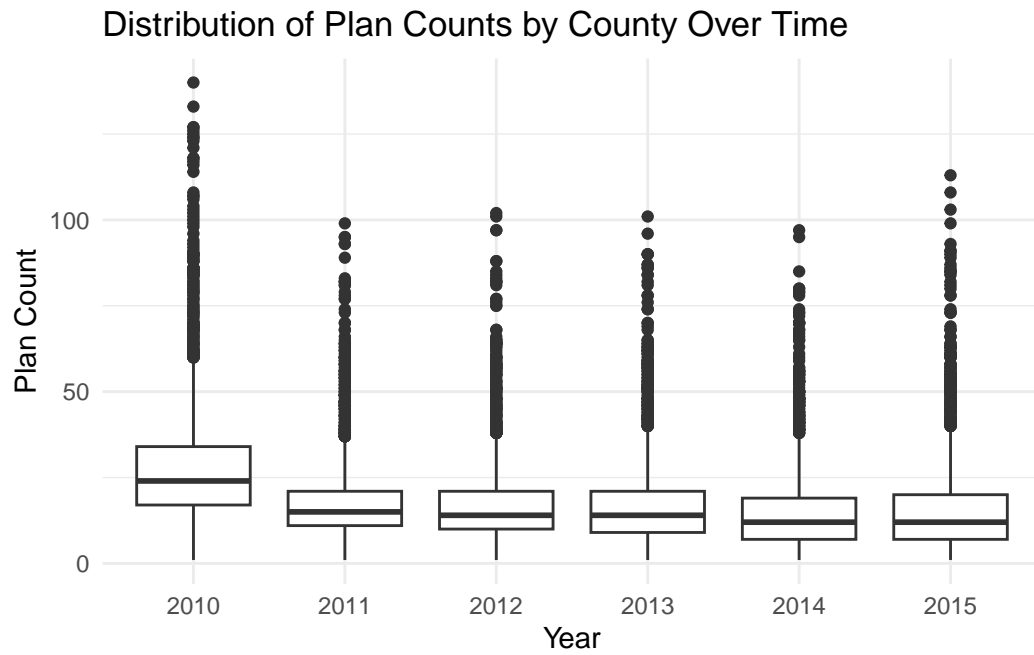


Figure 1: Average Benchmark Payment Over time

Problem 4

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? @problem4

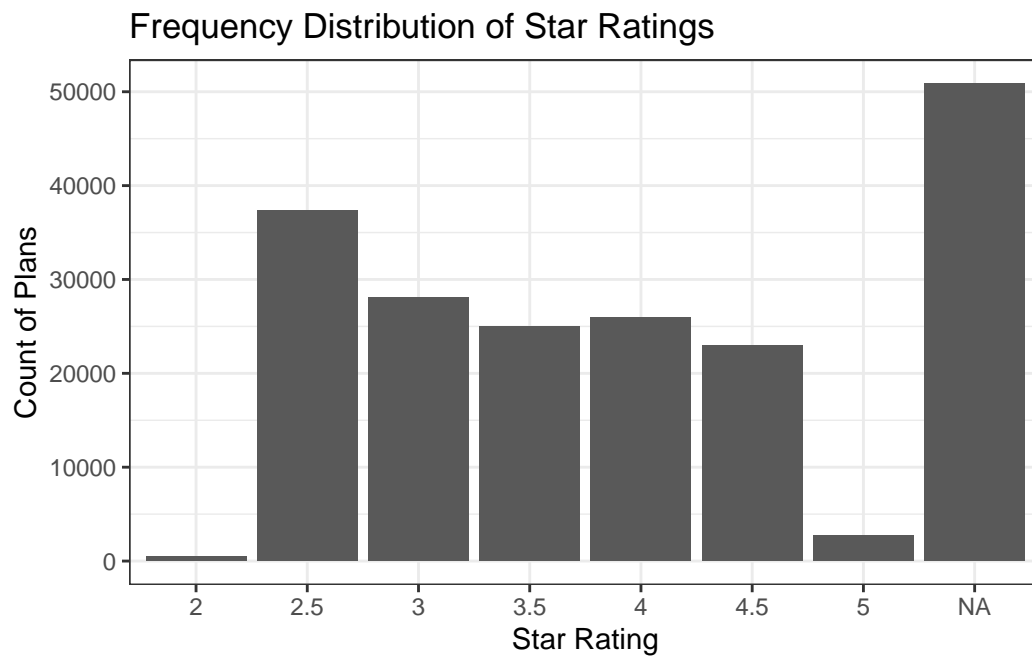


Figure 2: Average Medicare Advantage Share

Problem 5

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.

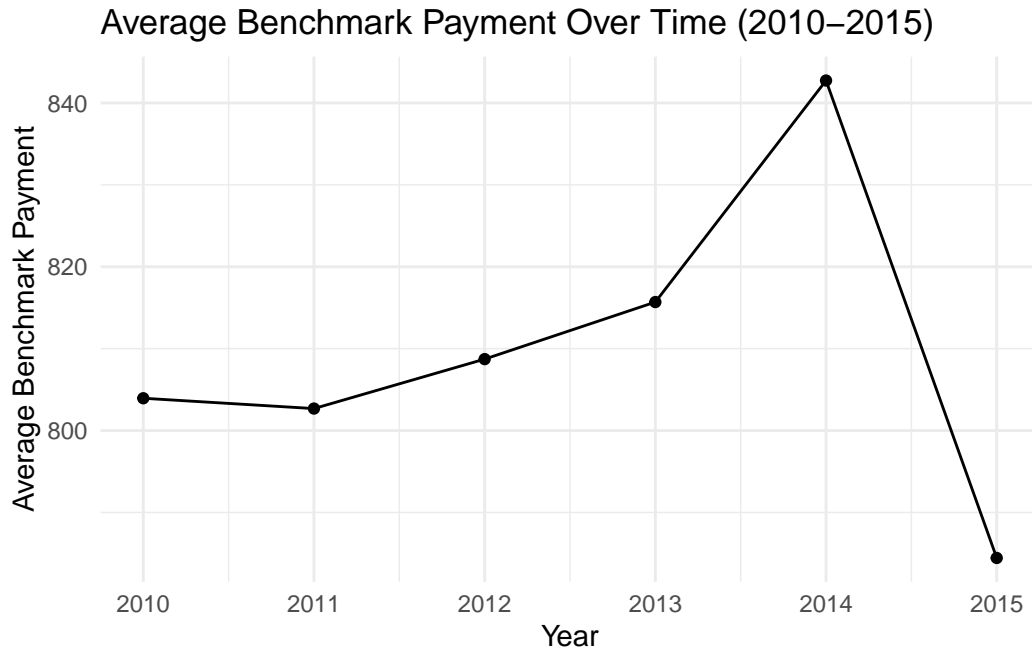


Figure 3: Number of Plans Based on Star Rating

Problem 6

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.

Warning: Removed 366 rows containing non-finite values (``stat_summary()``).

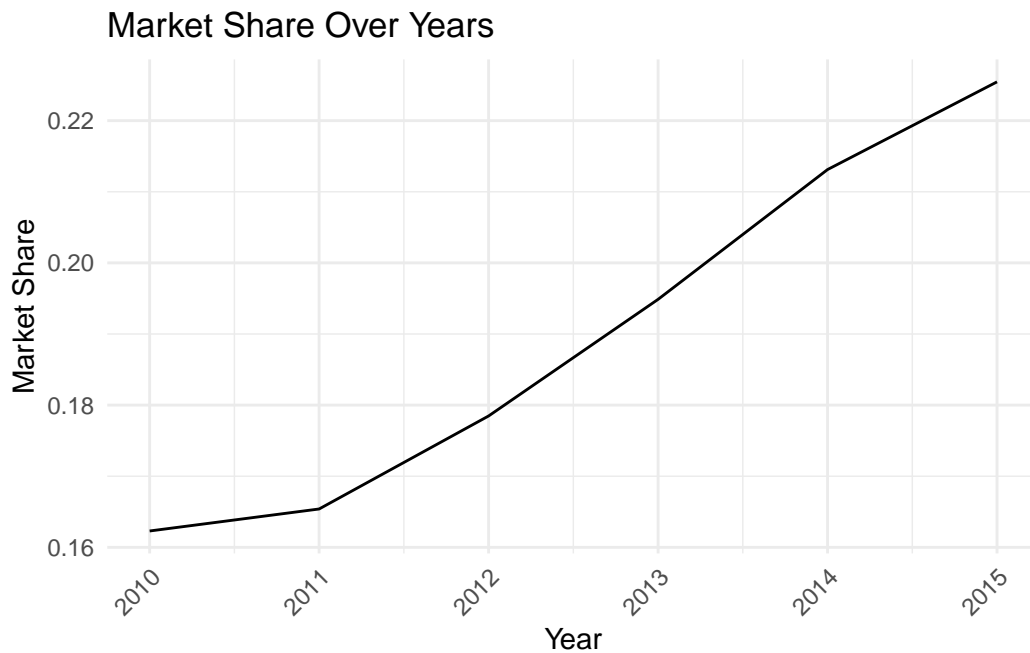


Figure 4: RD1

Problem 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?

3-star	3.5-star	4-star	4.5-star	5-star
1,734	1,815	606	0	0

distribution of the running variable before and after the relevant threshold values

Problem 8

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?

	Rating	Coeff	Std..Err.	z	P.Value
Conventional	3 vs 2.5	-0.0049040	0.0033526	-1.462718	1
Bias-Corrected	3 vs 2.5	-0.0337209	0.0033526	-10.058014	1
Robust	3 vs 2.5	-0.0337209	0.0055193	-6.109645	1

distribution of the running variable before and after the relevant threshold values

	Rating	Coeff	Std..Err.	z	P.Value
Conventional	3 vs 3.5	0.0013883	0.0029540	0.4699752	1
Bias-Corrected	3 vs 3.5	-0.0106484	0.0029540	-3.6047154	1
Robust	3 vs 3.5	-0.0106484	0.0049341	-2.1581298	1

distribution of the running variable before and after the relevant threshold values