

# **Submission1-HW4**

**Research Methods, Spring 2024**

Caroline Hansen

<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

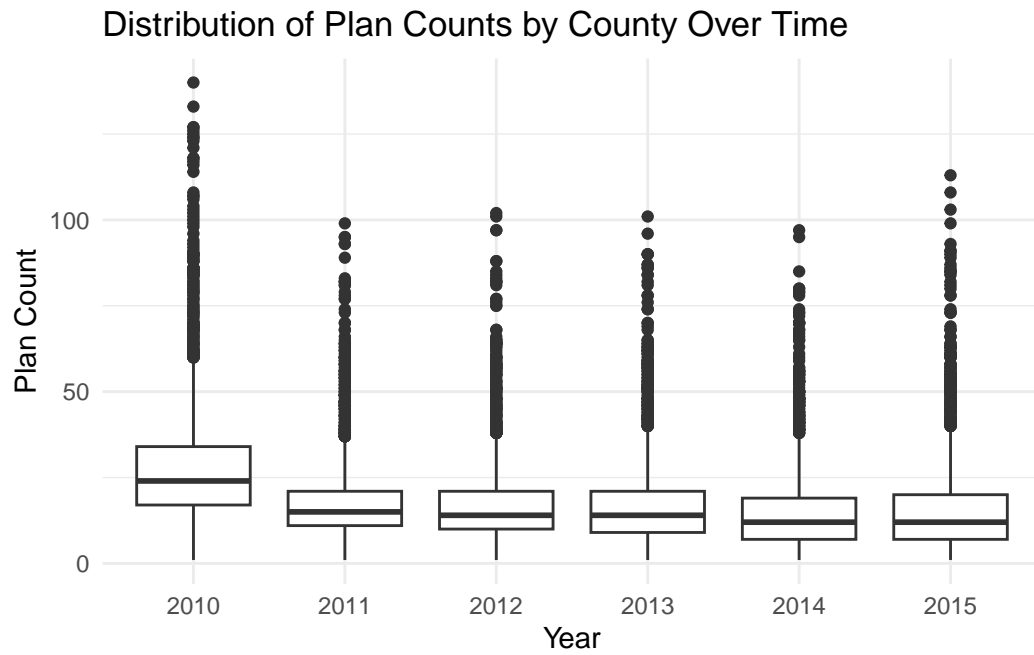


Figure 1: Average Benchmark Payment Over time

## 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

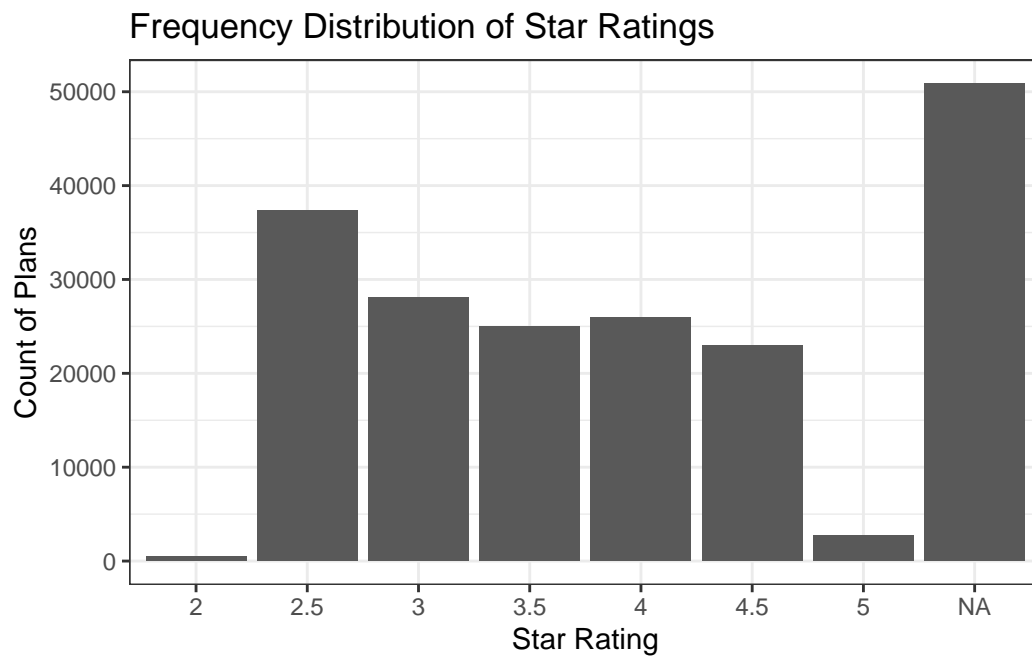


Figure 2: Average Medicare Advantage Share

## 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.

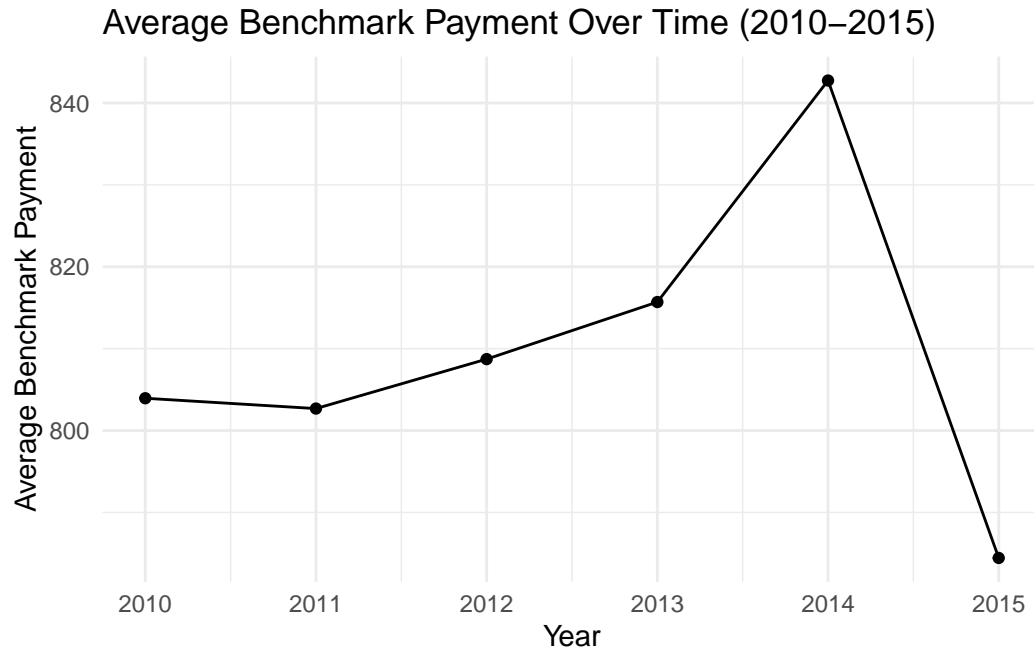


Figure 3: RD1

## 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()``).

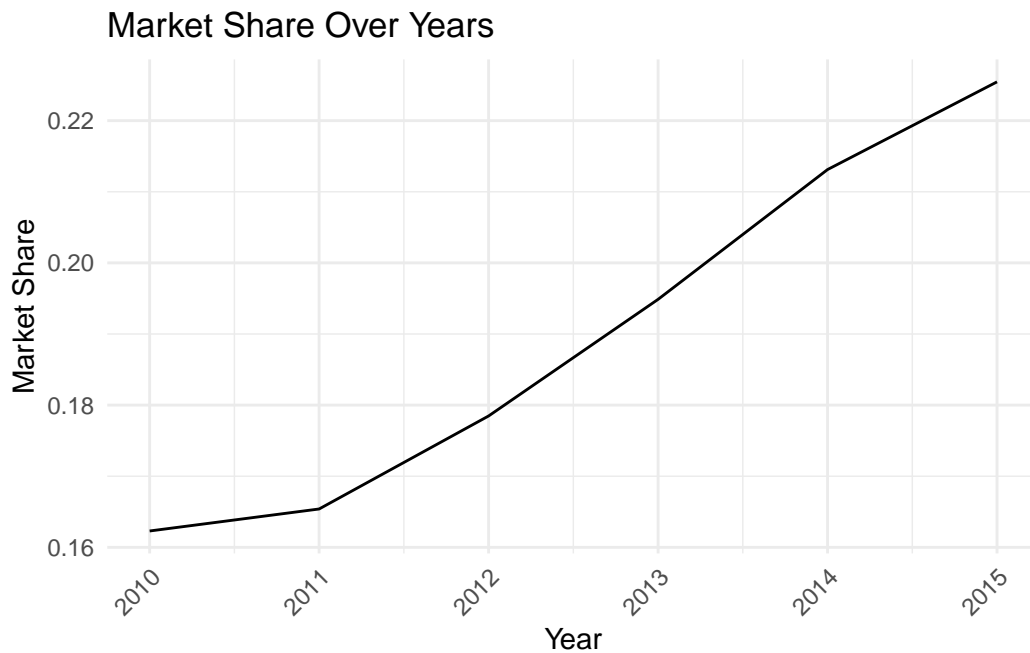


Figure 4: RD1

## 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?