Homework 4

Research Methods, Spring 2025

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You can access the Repository

1

`<Figure size 3600x1800 with 0 Axes>`


Distribution of Plan Counts by County Over Time
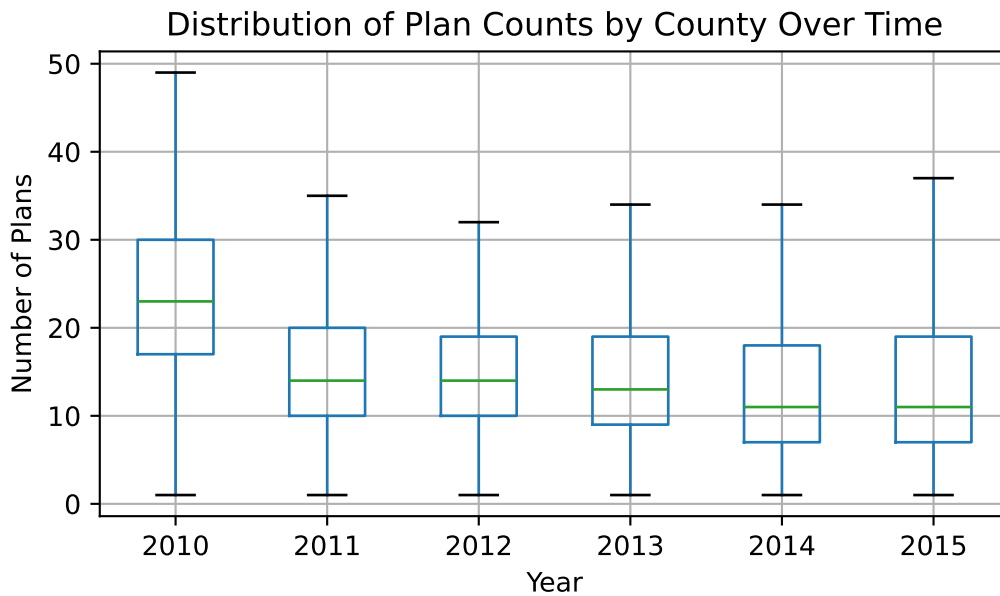
Data is filtered in earlier cleaning. A median of 20 plans in 2010 sounds like a good number per county. while it seems to decrease to just above 10 in the later years. If this is a trend and continues to decrease below 10 that seems like a problem. Some counties had 100+ at the max but a rare outlier. Below 10 plans gives few options for residents and shows a high market concentration and lack of competition regionally.

2

Star Rating Distribution (2010, 2012, 2015)
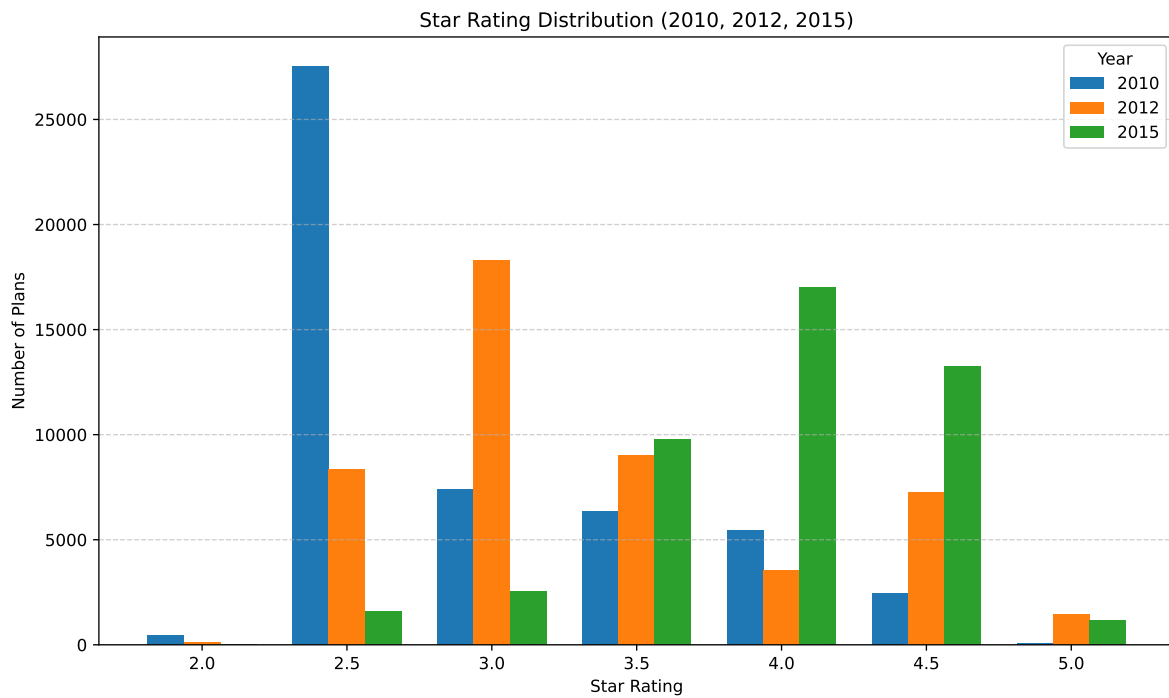
Star rating counts have increased with higher ratings over time. In 2010 2.5 stars was a large majority and those plans seem to increase rating or be replaced by plans rated 3.0 by 2012 and some above, then to 4.0 by 2015 as the majority. 5.0 and 2.0 plans dont seem to change. # 3

Average Benchmark Payment Over Time (2010-2015)
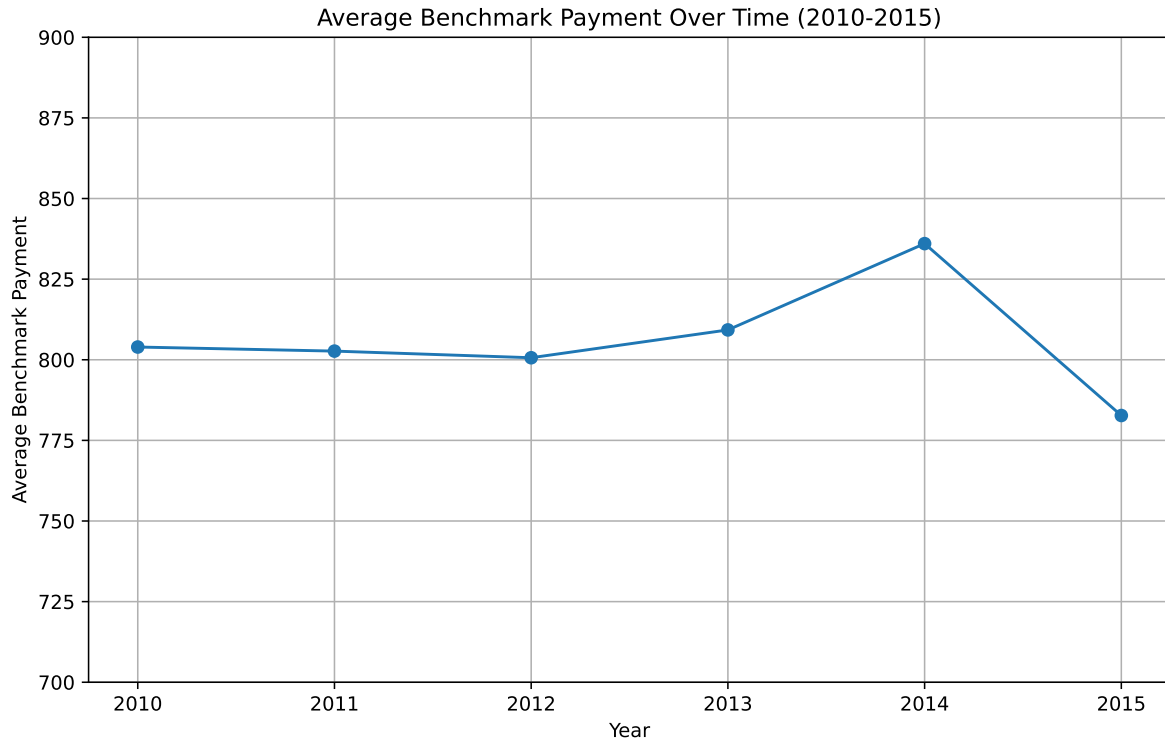
The average benchmark payment changed by $-21.24 from 2010 to 2015.

Not much change from 2010-2013. but then increases by 25 in 2014 then decreases by almost 50 from 2014 to 2015. In the end a small decrease but some volitilty increasing recently.

4

Average Share of Medicare Advantage Over Time (2010-2015)
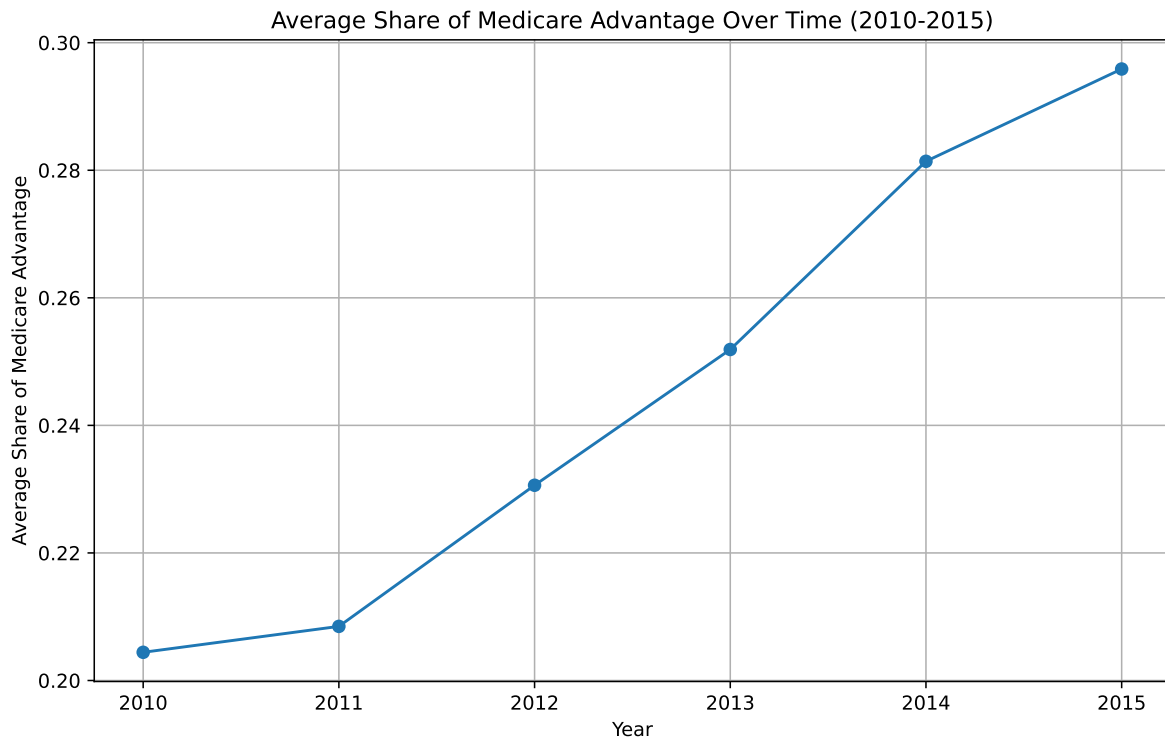
Medicare Advantage clearly increasing in popularity with more enrolled per eligible each year. With no clear correlation with benchmark payments.

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|	Star_Rating	rounded
0	3.0	4262
1	3.5	3745
2	4.0	1742
3	4.5	0
4	5.0	0

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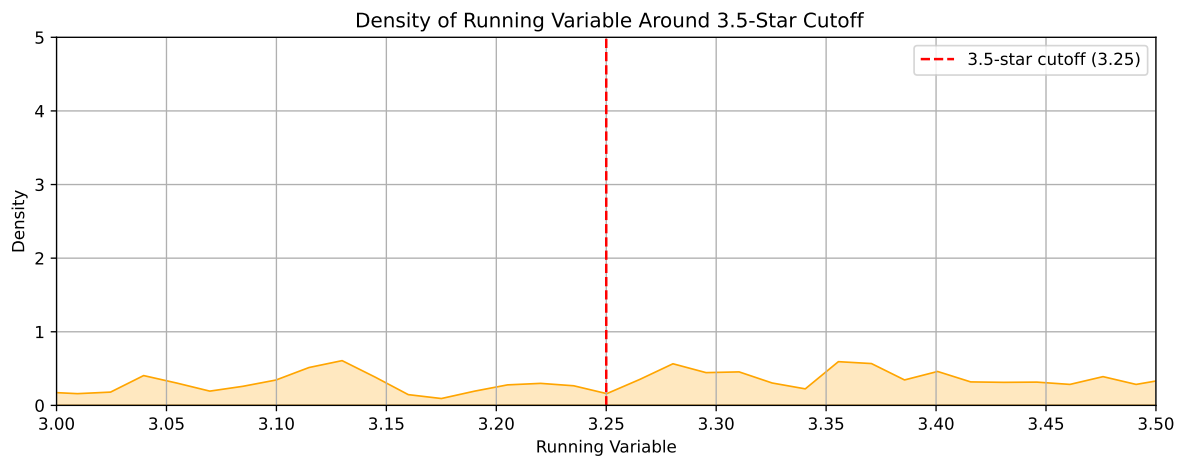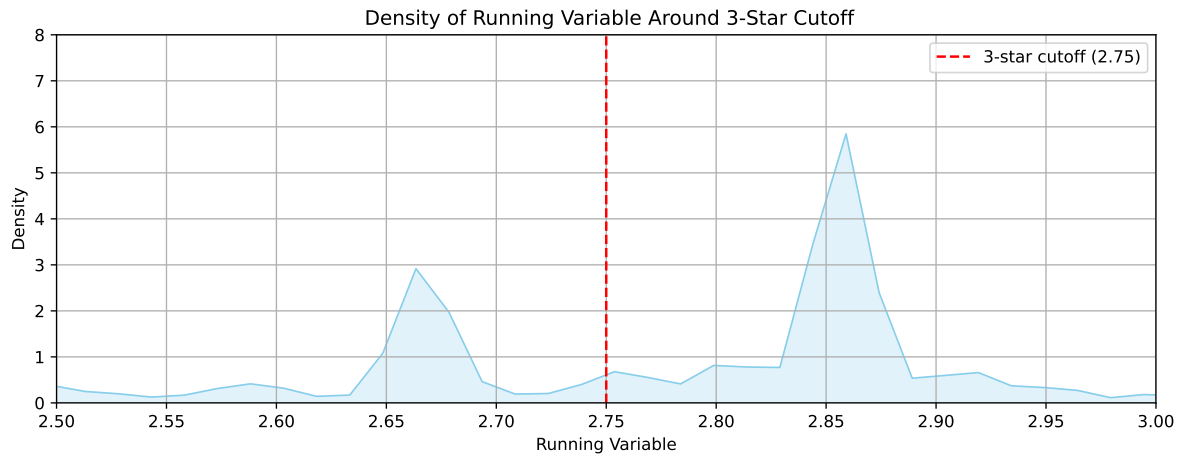Table 2: Table 1: RD Estimates at 3-Star and 3.5-Star Thresholds

	3-Star Threshold	3.5-Star Threshold
Intercept	0.185 (0.001)	0.244 (0.006)
Rounded	0.043 (0.003)	-0.003 (0.007)
Running Score	0.028 (0.012)	0.492 (0.032)
N	15271	3821
R2	0.018000	0.072000

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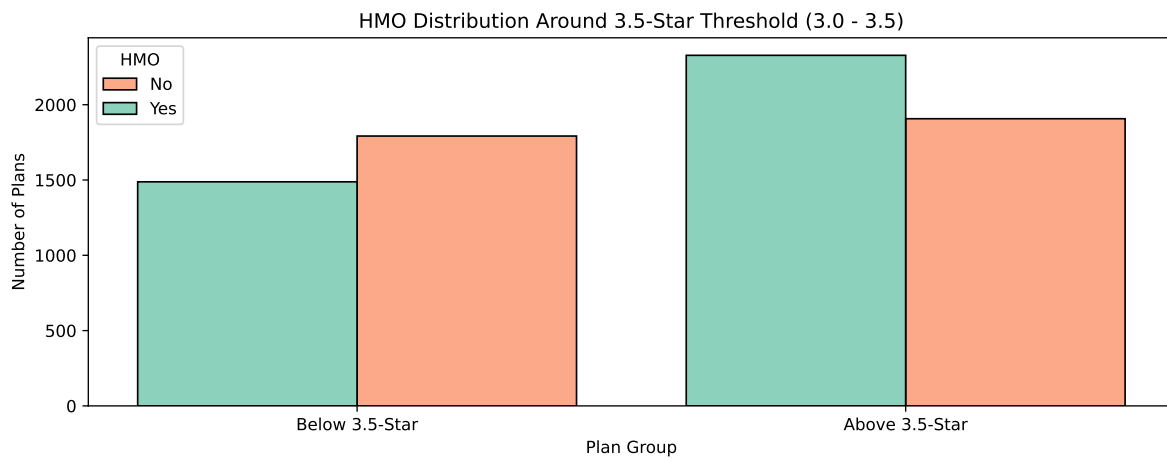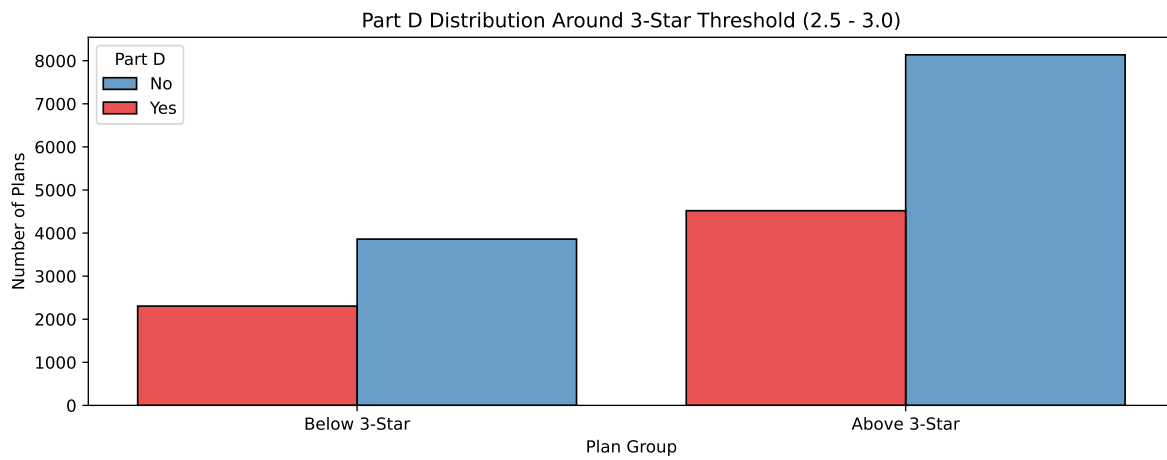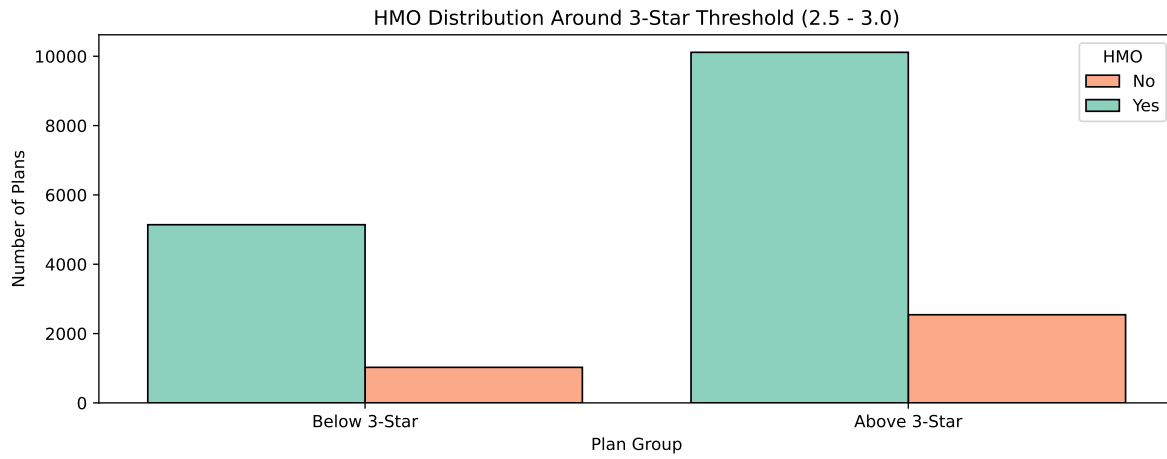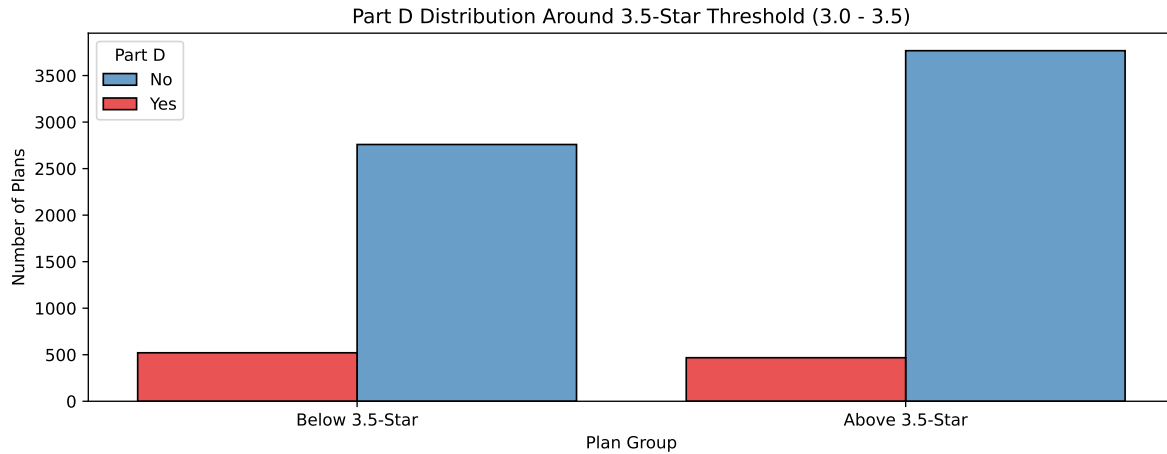Treatment Effect with 95% Confidence Intervals by Bandwidth
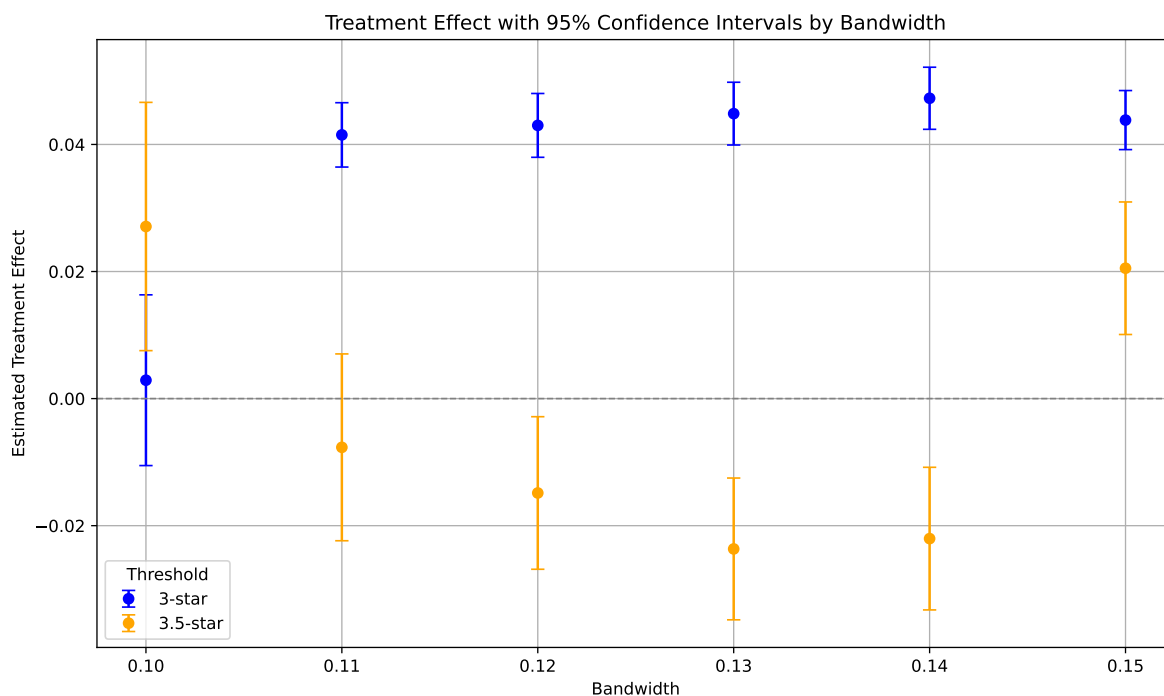
3* requiring a bandwidth greater than 0.1 for a strong effect but as bandwidth increases not very sensitive and stays strong.

3.5* much more sensitive to bandwidths with the strongest effect being at the smallest bandwidth of 0.1 then clearly dropping treatment effect strength at 0.15 and continues to decrease. Meaning it is much more sensitive.

Density of Running Variable Around 3-Star Cutoff

Density of Running Variable Around 3.5-Star Cutoff

Visually at the 3.0* level contracts appear manipulated the running variable with a large spike just after the threshold with a clear large peak after the threshold. While the 3.5* level was very stable across indicating no manupulation effect.

HMO Distribution Around 3-Star Threshold (2.5 - 3.0)

Part D Distribution Around 3-Star Threshold (2.5 - 3.0)

HMO Distribution Around 3.5-Star Threshold (3.0 - 3.5)

Shows that proportion of HMO above threshold is greater for both but more drastic at 3.0* level. Greater proportion of non part D above than below. However in general all areas have more HMO than non HMO and No Part D comapared to Part D in absolute counts.

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There was some effect of rounding up star values showing manipulion. We know that star rating have increased and that enrollments have been increasing over time. Question 6 shows mostly strong positive coefficients indicating that there is an effect of star rating on market share.