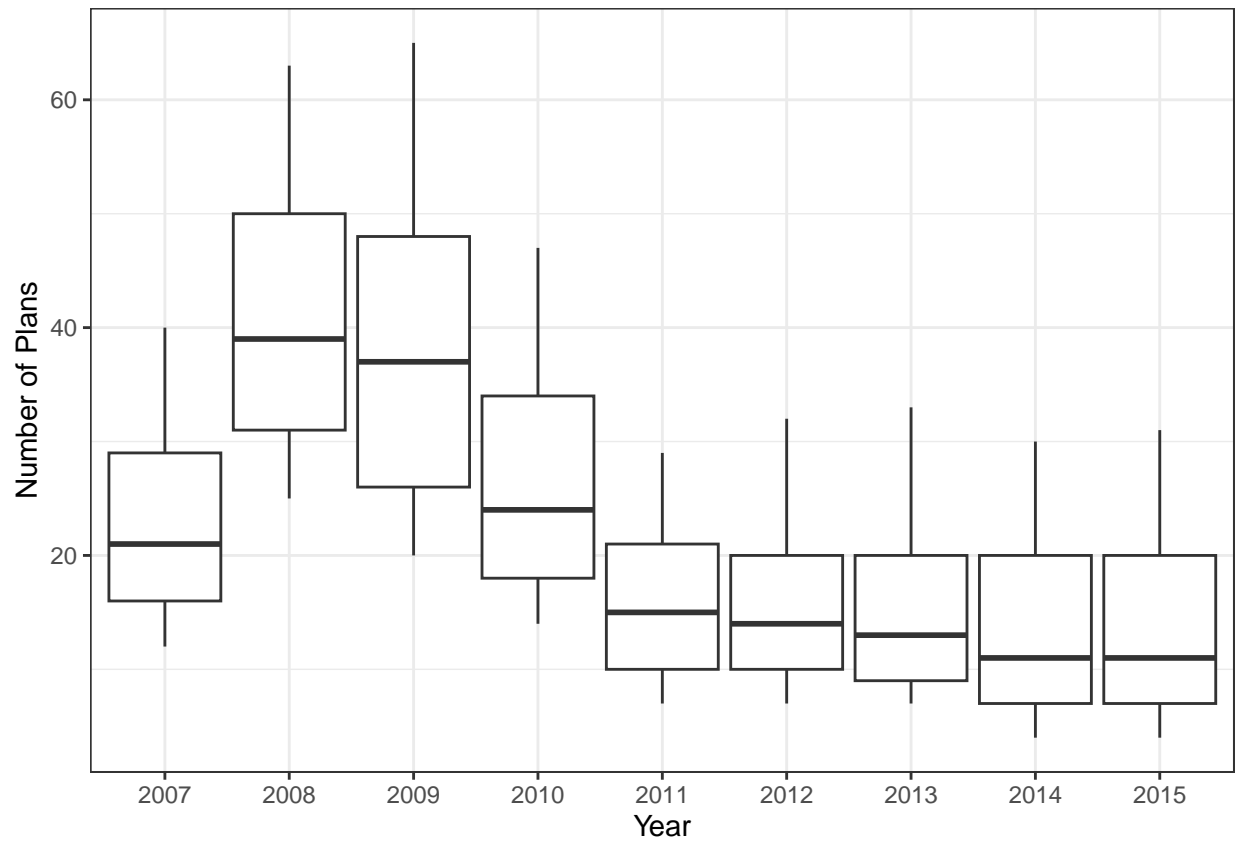


# Joseph-J-hwk3-3

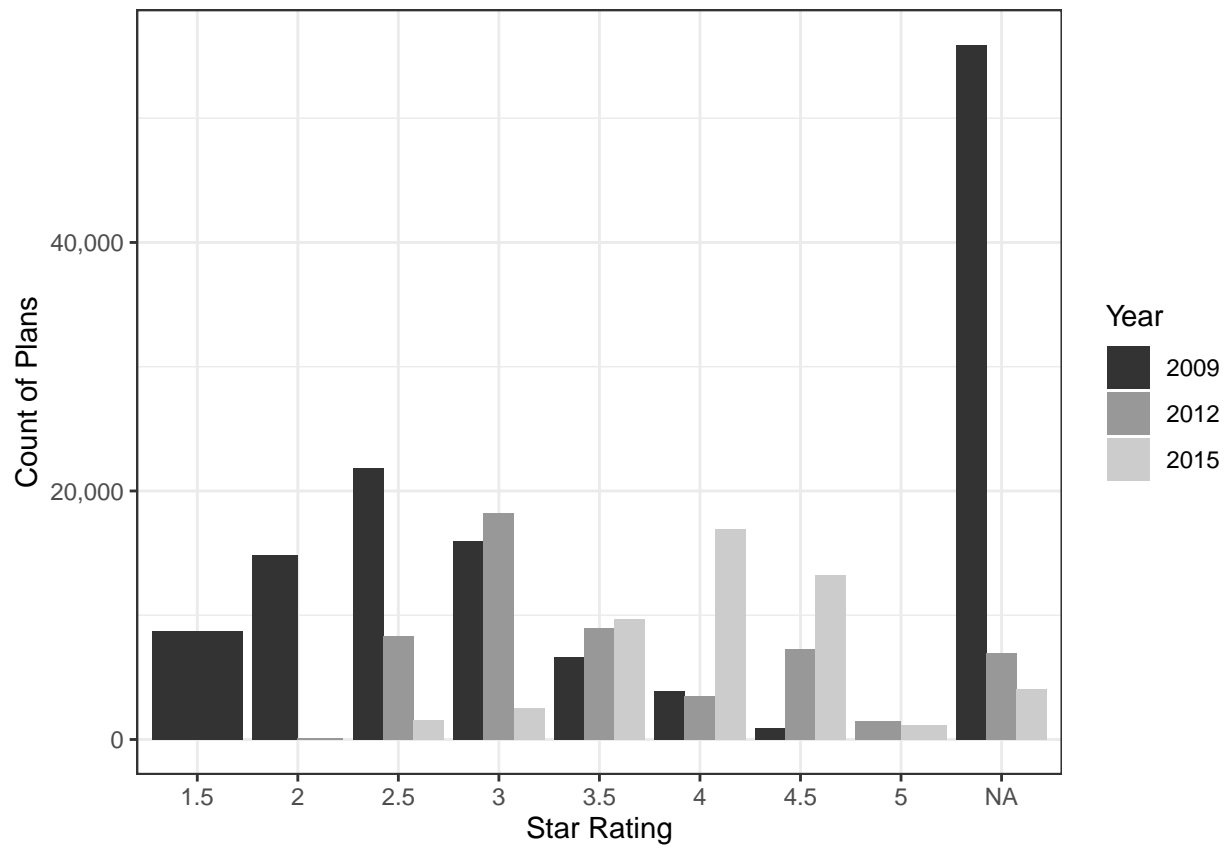
Justin Joseph

2023-03-15

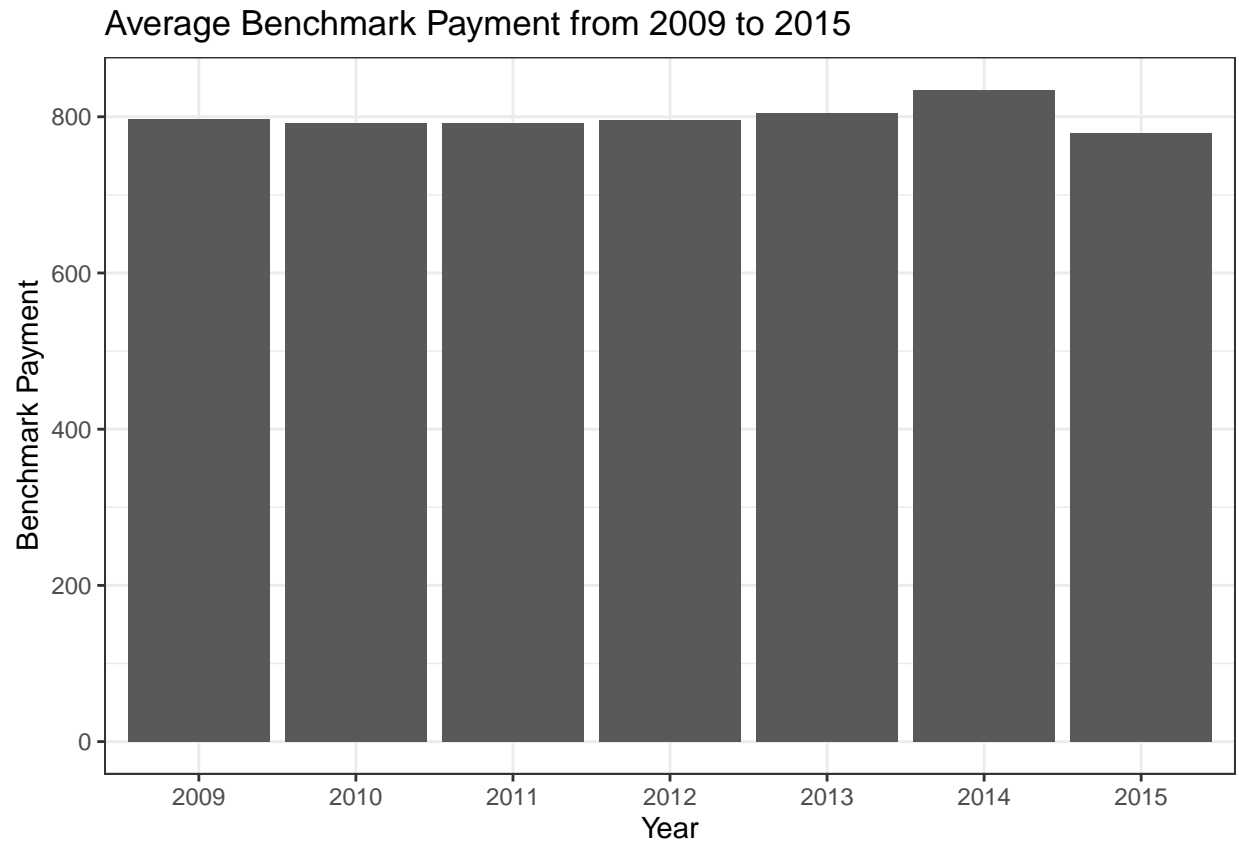
0.0.1 1.



0.0.2 2.

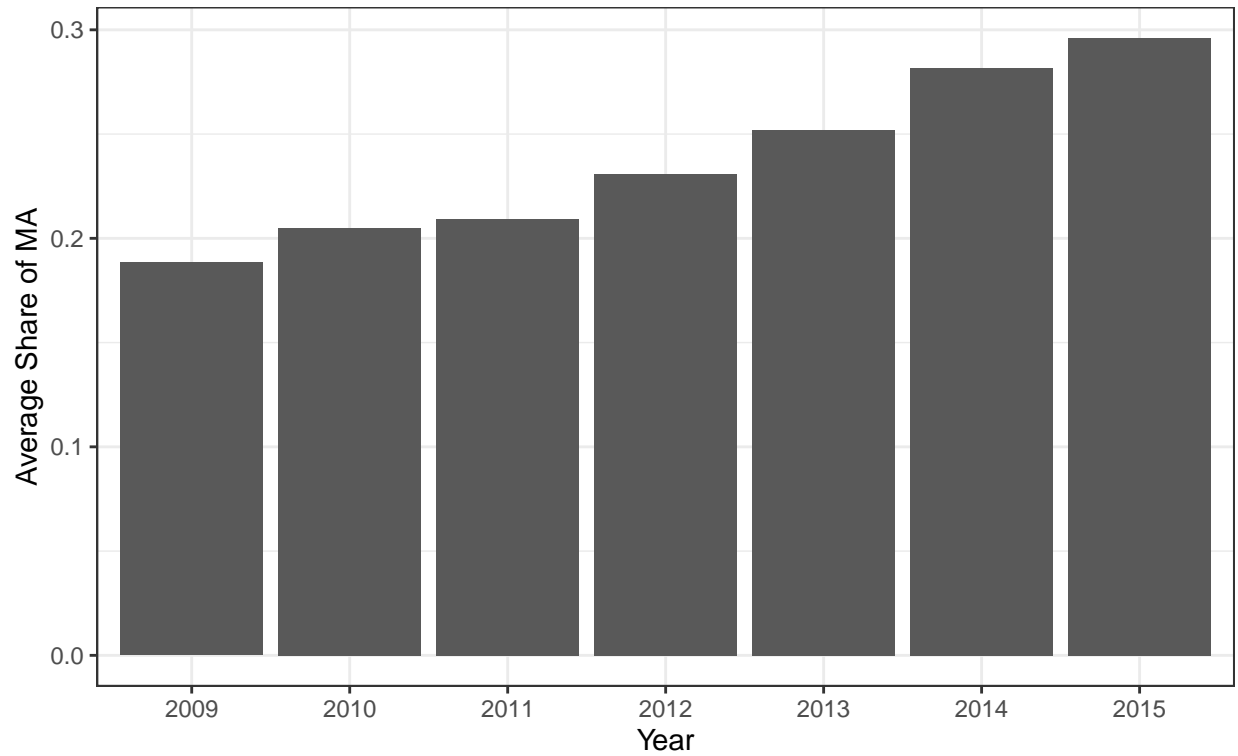


0.0.3 3.



0.0.4 4.

Average share of Medicare Advantage  
(relative to all Medicare eligibles) over time from 2009 through 2015



0.0.5 5.

Var1	Freq
3	3698
3.5	2210
4	1444
4.5	426

0.0.6 6.

```
## Sharp RD estimates using local polynomial regression.
##
## Number of Obs.          18986
## BW type                 Manual
## Kernel                  Uniform
## VCE method              HCO
##
## Number of Obs.          4622      14364
## Eff. Number of Obs.     2974      267
## Order est. (p)          1          1
## Order bias (q)          2          2
```

```

## BW est. (h)                0.125      0.125
## BW bias (b)                0.125      0.125
## rho (h/b)                  1.000      1.000
##
## =====
##           Method      Coef. Std. Err.      z    P>|z|      [ 95% C.I. ]
## =====
##   Conventional    608.823    105.467     5.773    0.000   [402.112 , 815.534]
##       Robust         -         -     2.607    0.009   [185.349 , 1308.273]
## =====

```

## Sharp RD estimates using local polynomial regression.

```

##
## Number of Obs.            18986
## BW type                    Manual
## Kernel                     Uniform
## VCE method                 HC0
##
## Number of Obs.            11208      7778
## Eff. Number of Obs.       270        1683
## Order est. (p)             1          1
## Order bias (q)             2          2
## BW est. (h)                0.125      0.125
## BW bias (b)                0.125      0.125
## rho (h/b)                  1.000      1.000
##
## =====
##           Method      Coef. Std. Err.      z    P>|z|      [ 95% C.I. ]
## =====
##   Conventional   1062.226    658.375     1.613    0.107  [-228.166 , 2352.618]
##       Robust         -         -    -0.123    0.902  [-2513.195 , 2216.226]
## =====

```

## Sharp RD estimates using local polynomial regression.

```

##
## Number of Obs.            18986
## BW type                    Manual
## Kernel                     Uniform
## VCE method                 HC0
##
## Number of Obs.            15331      3655
## Eff. Number of Obs.       914         664
## Order est. (p)             1          1
## Order bias (q)             2          2
## BW est. (h)                0.125      0.125
## BW bias (b)                0.125      0.125
## rho (h/b)                  1.000      1.000
##
## =====
##           Method      Coef. Std. Err.      z    P>|z|      [ 95% C.I. ]
## =====
##   Conventional   1143.185    160.212     7.135    0.000   [829.176 , 1457.195]
##       Robust         -         -     2.739    0.006   [135.477 , 817.494]
## =====

```

```
## Sharp RD estimates using local polynomial regression.
##
## Number of Obs.          18986
## BW type                 Manual
## Kernel                  Uniform
## VCE method              HC0
##
## Number of Obs.          17640          1346
## Eff. Number of Obs.     646           640
## Order est. (p)          1             1
## Order bias (q)          2             2
## BW est. (h)             0.125         0.125
## BW bias (b)             0.125         0.125
## rho (h/b)              1.000         1.000
##
## =====
##      Method      Coef. Std. Err.      z    P>|z|      [ 95% C.I. ]
## =====
##      Conventional  328.527   123.466    2.661    0.008   [86.539 , 570.515]
##      Robust        -         -    -0.345    0.730  [-676.411 , 473.867]
## =====
```

#### 0.0.7 7.

```
## Sharp RD estimates using local polynomial regression.
##
## Number of Obs.          18986
## BW type                 Manual
## Kernel                  Uniform
## VCE method              HC0
##
## Number of Obs.          4622          14364
## Eff. Number of Obs.     2954          154
## Order est. (p)          1             1
## Order bias (q)          2             2
## BW est. (h)             0.100         0.100
## BW bias (b)             0.100         0.100
## rho (h/b)              1.000         1.000
##
## =====
##      Method      Coef. Std. Err.      z    P>|z|      [ 95% C.I. ]
## =====
##      Conventional  636.827   229.471    2.775    0.006  [187.071 , 1086.582]
##      Robust        -         -    2.280    0.023  [125.707 , 1664.792]
## =====
```

```
## Sharp RD estimates using local polynomial regression.
##
## Number of Obs.          18986
## BW type                 Manual
## Kernel                  Uniform
## VCE method              HC0
##
```

```

## Number of Obs.          4622          14364
## Eff. Number of Obs.    2974          242
## Order est. (p)         1             1
## Order bias (q)         2             2
## BW est. (h)            0.120         0.120
## BW bias (b)            0.120         0.120
## rho (h/b)              1.000         1.000
##
## =====
##           Method      Coef. Std. Err.      z    P>|z|      [ 95% C.I. ]
## =====
##   Conventional    658.555    104.984     6.273    0.000    [452.790 , 864.320]
##       Robust         -         -     2.205    0.027    [73.008 , 1242.137]
## =====

## Sharp RD estimates using local polynomial regression.
##
## Number of Obs.          18986
## BW type                 Manual
## Kernel                  Uniform
## VCE method              HCO
##
## Number of Obs.          4622          14364
## Eff. Number of Obs.    2983          267
## Order est. (p)         1             1
## Order bias (q)         2             2
## BW est. (h)            0.130         0.130
## BW bias (b)            0.130         0.130
## rho (h/b)              1.000         1.000
##
## =====
##           Method      Coef. Std. Err.      z    P>|z|      [ 95% C.I. ]
## =====
##   Conventional    611.627    105.455     5.800    0.000    [404.940 , 818.315]
##       Robust         -         -     2.657    0.008    [197.424 , 1308.345]
## =====

## Sharp RD estimates using local polynomial regression.
##
## Number of Obs.          18986
## BW type                 Manual
## Kernel                  Uniform
## VCE method              HCO
##
## Number of Obs.          4622          14364
## Eff. Number of Obs.    3001          267
## Order est. (p)         1             1
## Order bias (q)         2             2
## BW est. (h)            0.140         0.140
## BW bias (b)            0.140         0.140
## rho (h/b)              1.000         1.000
##
## =====
##           Method      Coef. Std. Err.      z    P>|z|      [ 95% C.I. ]
## =====

```

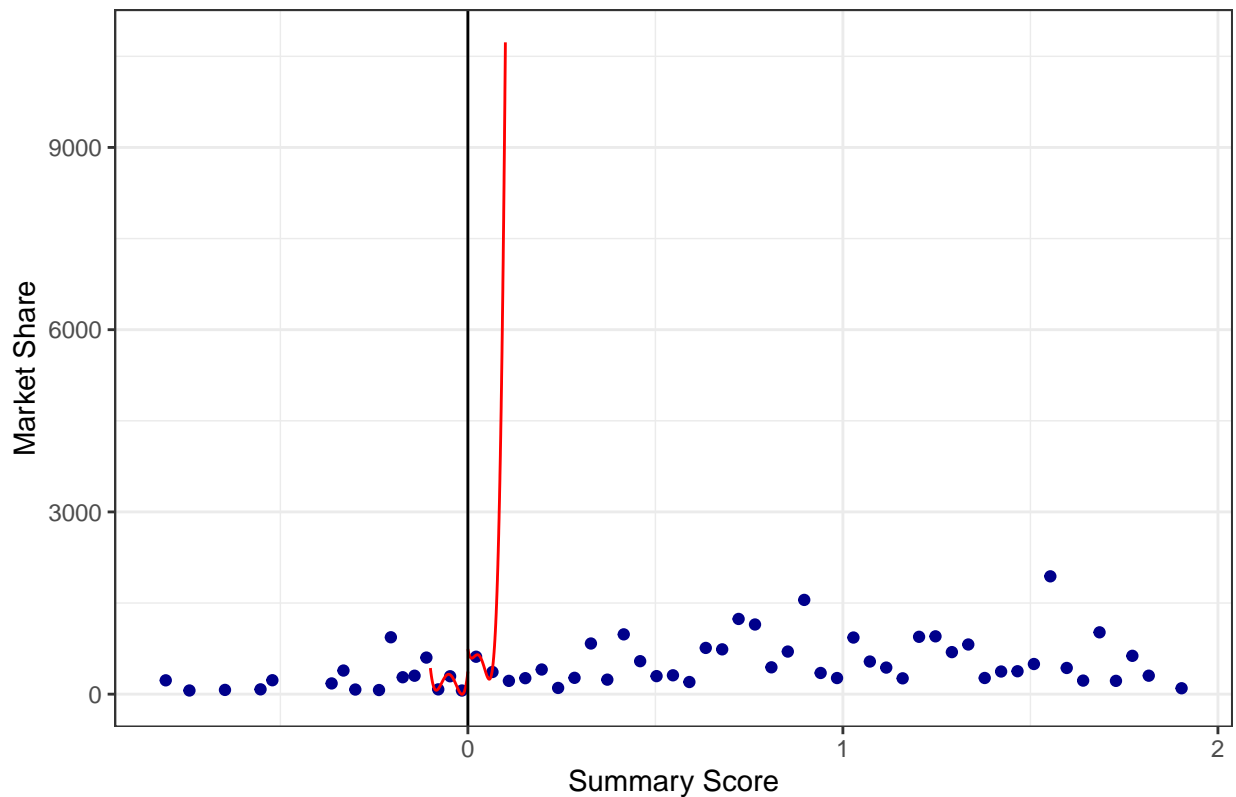
```

## =====
##   Conventional   623.878   105.634   5.906   0.000   [416.839 , 830.917]
##       Robust      -         -     2.649   0.008   [194.368 , 1299.965]
## =====

## Sharp RD estimates using local polynomial regression.
##
## Number of Obs.           18986
## BW type                  Manual
## Kernel                   Uniform
## VCE method               HC0
##
## Number of Obs.           4622       14364
## Eff. Number of Obs.      3001       267
## Order est. (p)           1           1
## Order bias (q)           2           2
## BW est. (h)              0.150      0.150
## BW bias (b)              0.150      0.150
## rho (h/b)                1.000      1.000
##
## =====
##      Method      Coef. Std. Err.      z    P>|z|      [ 95% C.I. ]
## =====
##   Conventional   623.878   105.634   5.906   0.000   [416.839 , 830.917]
##       Robust      -         -     2.649   0.008   [194.368 , 1299.965]
## =====

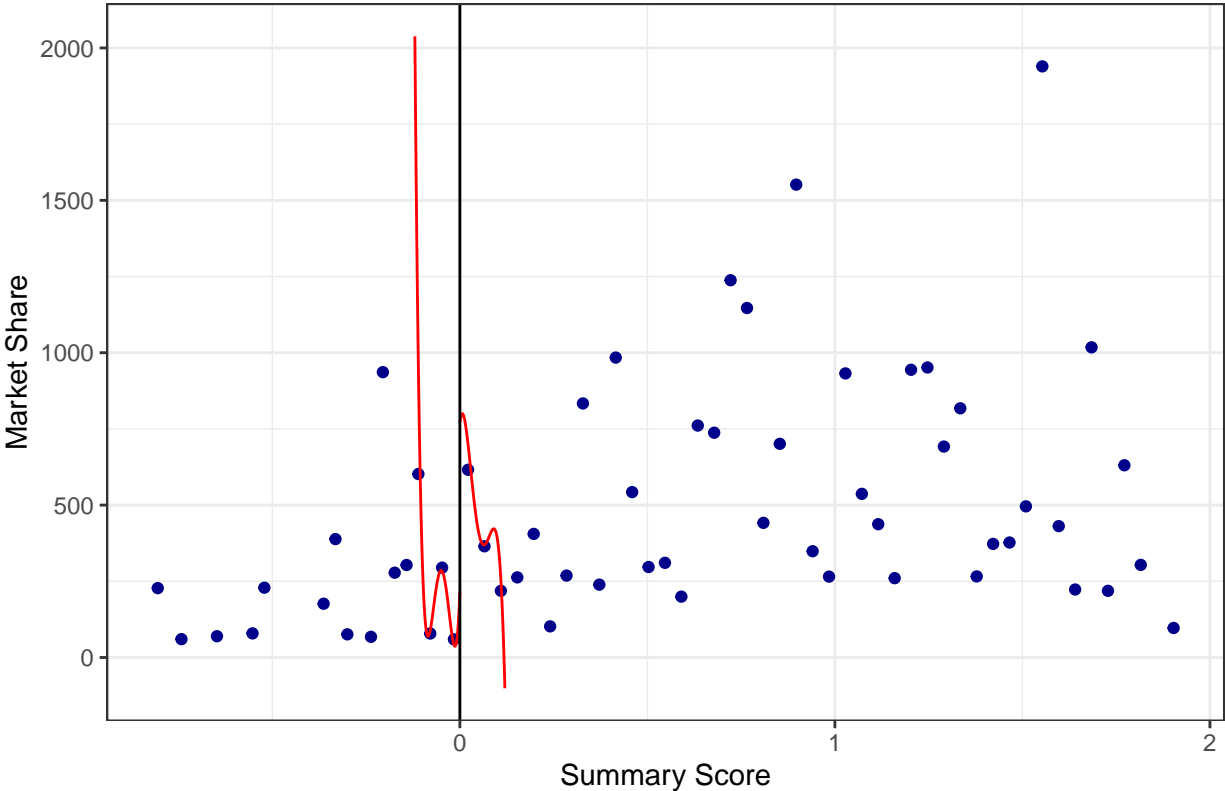
```

RD Plot: h=0.1

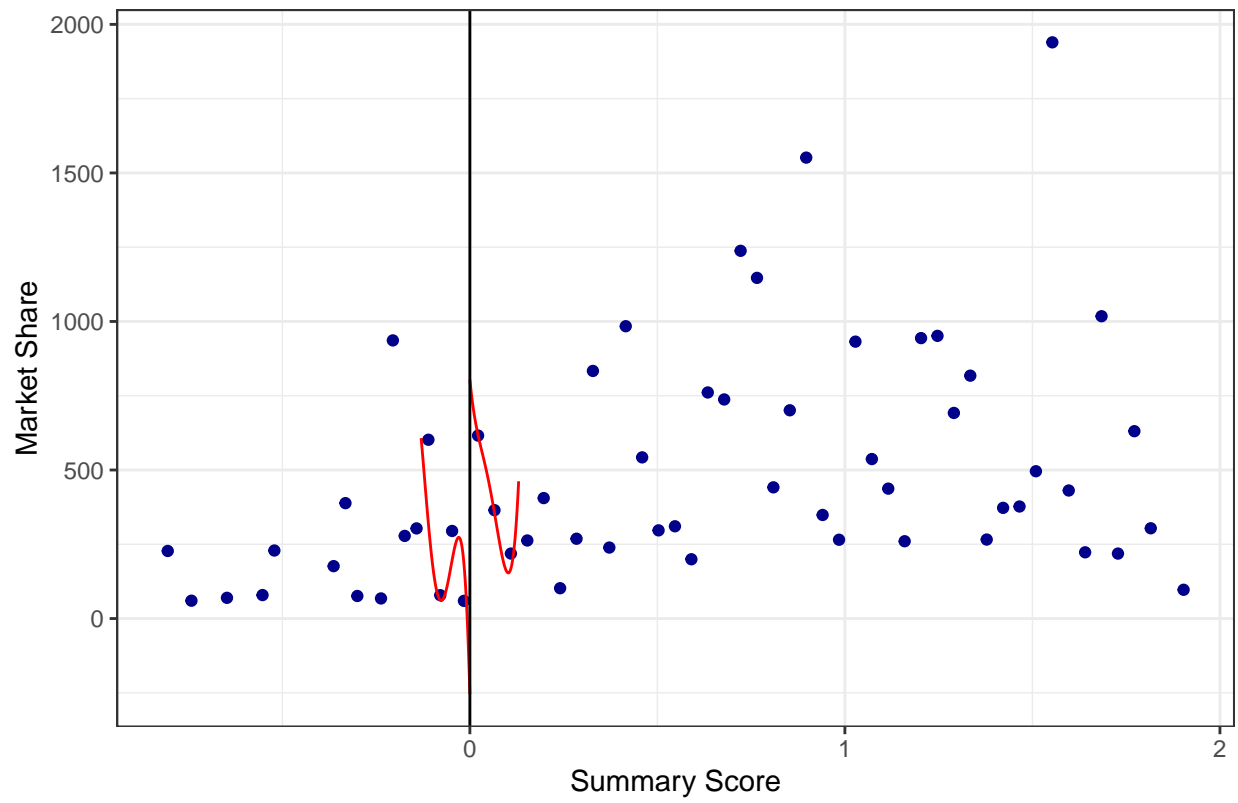




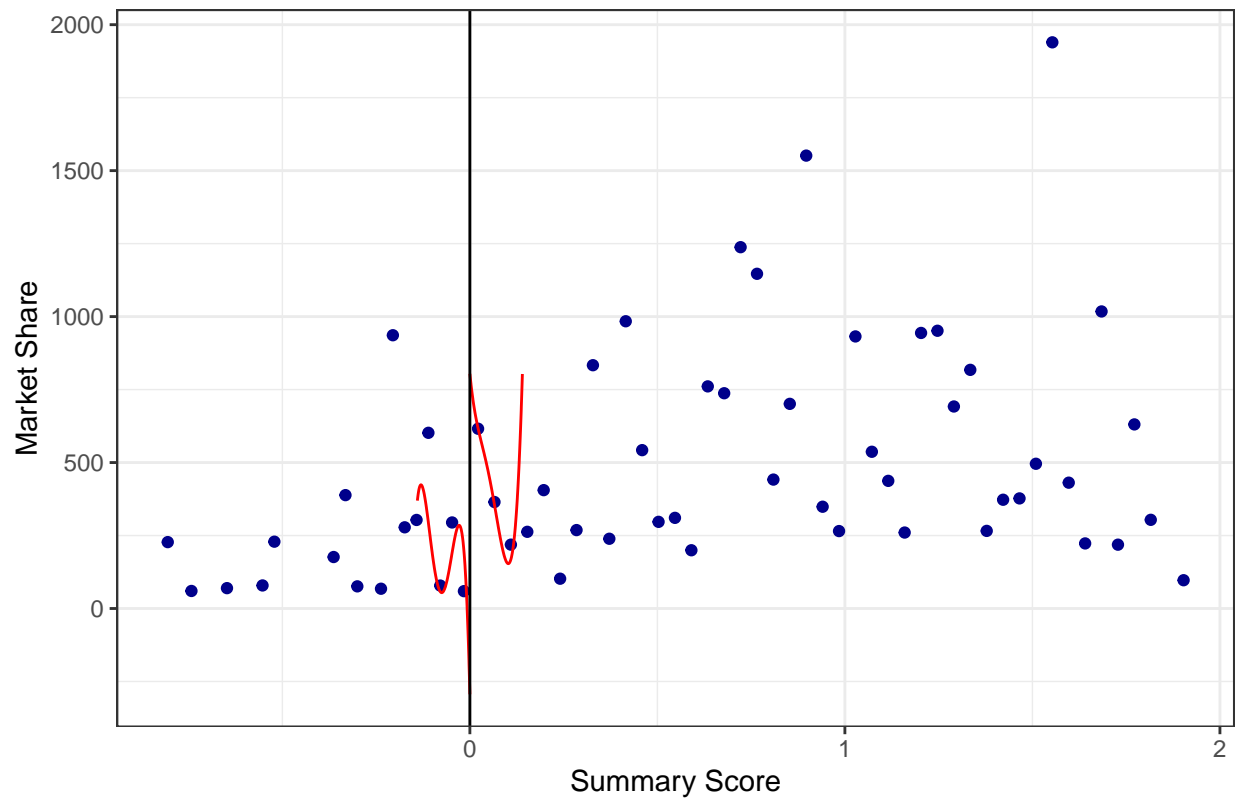
RD Plot:  $h=0.12$



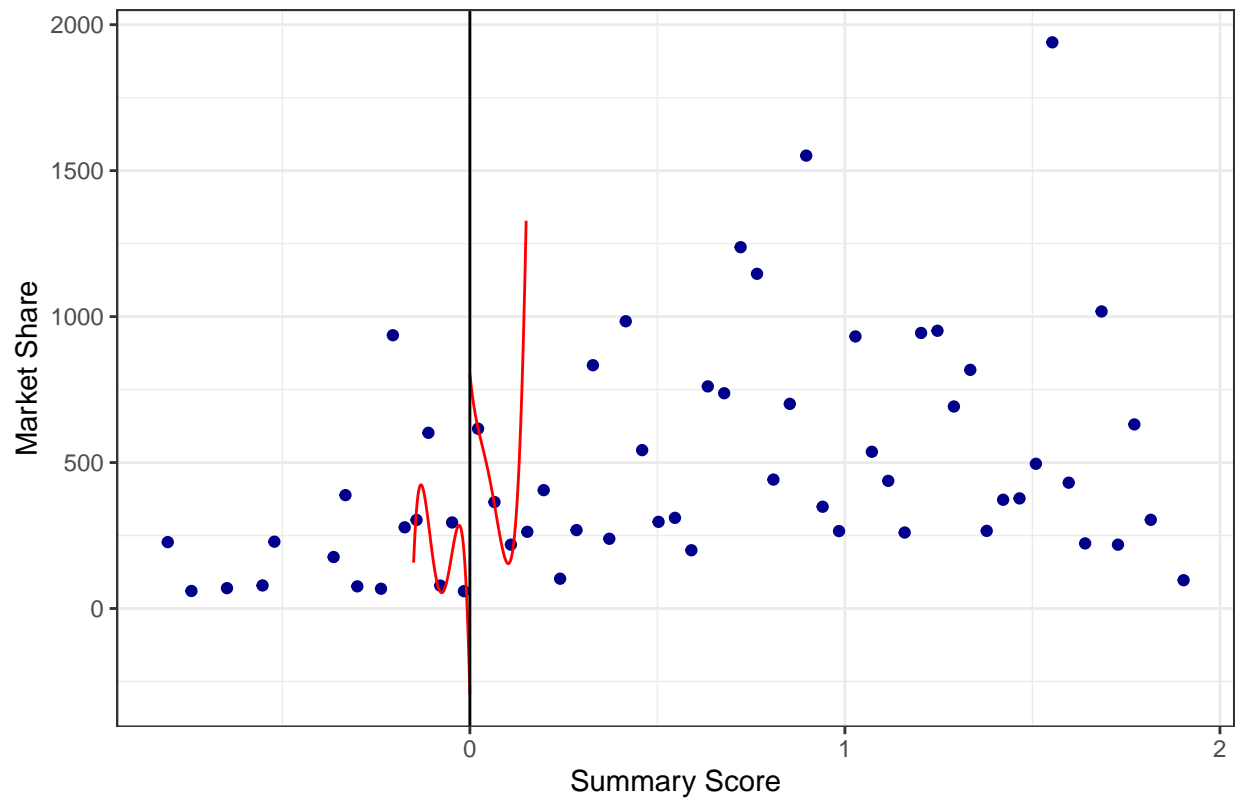
RD Plot:  $h=0.13$



RD Plot:  $h=0.14$

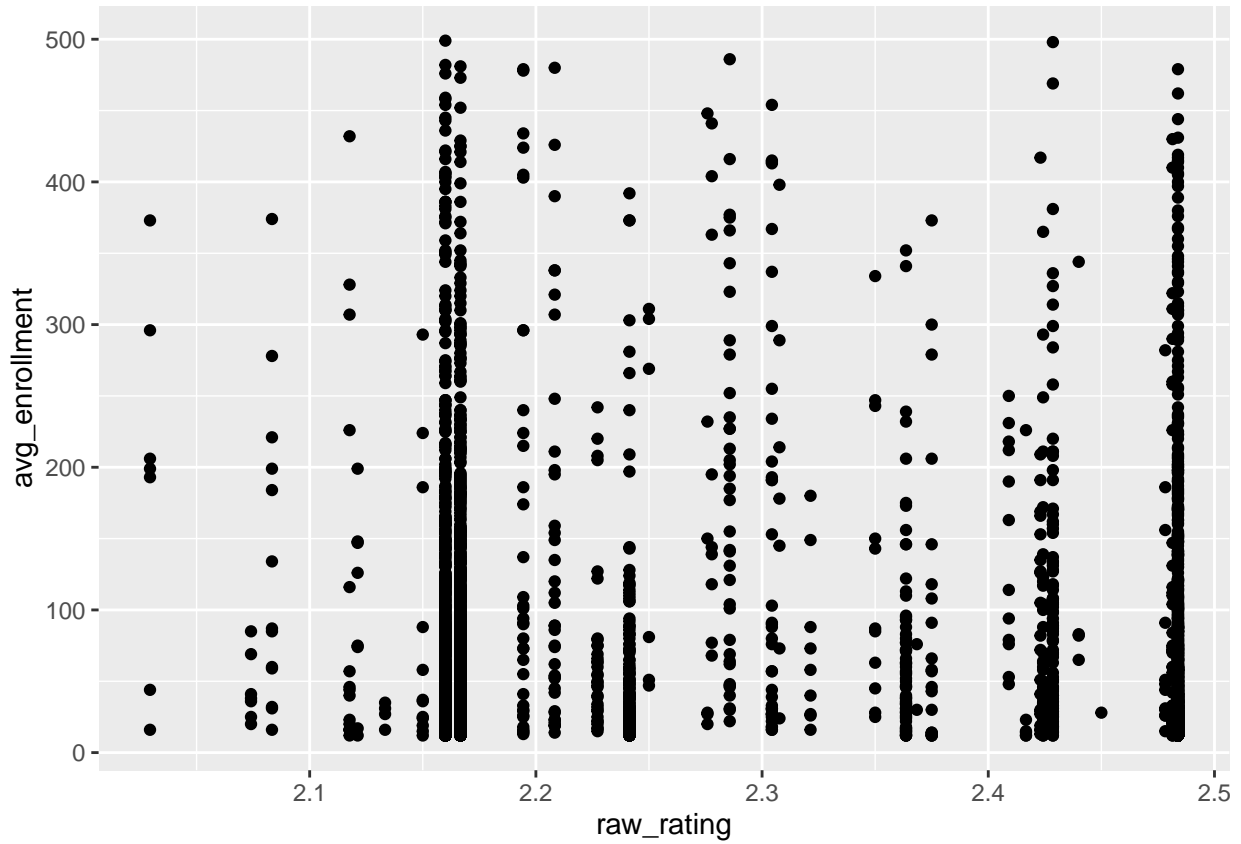


RD Plot:  $h=0.15$



As you increase the bandwidth it decreases sensitivity that's why it is optimal to have a more narrow bandwidth

### 0.0.8 8.



So we see here that a majority of the contracts are centered around 2.16 and 2.45 not very much data around our threshold of 2.5.

### 0.0.9 9.

Table 2: Counts and proportion of plans with PartD equal to 'Yes'

Rating Category	Total Count	PartD Yes Count	PartD Yes Proportion
Below 2.25	3037	1560	0.5136648
Above 2.5	6923	5968	0.8620540

Here we see there is a potential difference in plan characteristics above and below the threshold where plans above the star rating of 2.25 have a high proportion of partD compared to a smaller number of plans below 2.25.

### 0.0.10 10.

Overall, increasing star rating has a direct effect on increasing enrollment. Across all of over models we see an average coefficient to be around 600. thus for every increase in star rating there is about 600 individuals who are now enrolled