HW6

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1 Python

1.1

- Because the policy contains a strict requirement, we expect a sharp RD design. In other words, we do not expect to see cars over the length threshold go *untreated*.
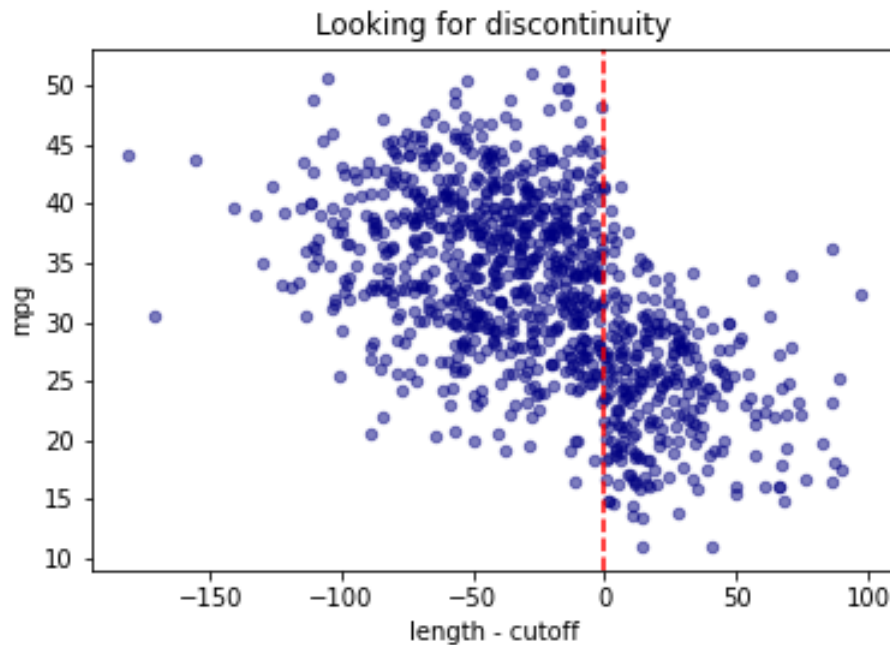
1.2

Figure 1: The discontinuity is not immediately evident from this plot alone. While there are more points near the cutoff than far from it, this is likely because the cutoff itself is fairly near the sample average of lengths (which should be normally distributed in the population). There is little evidence of manipulation of the running variable.
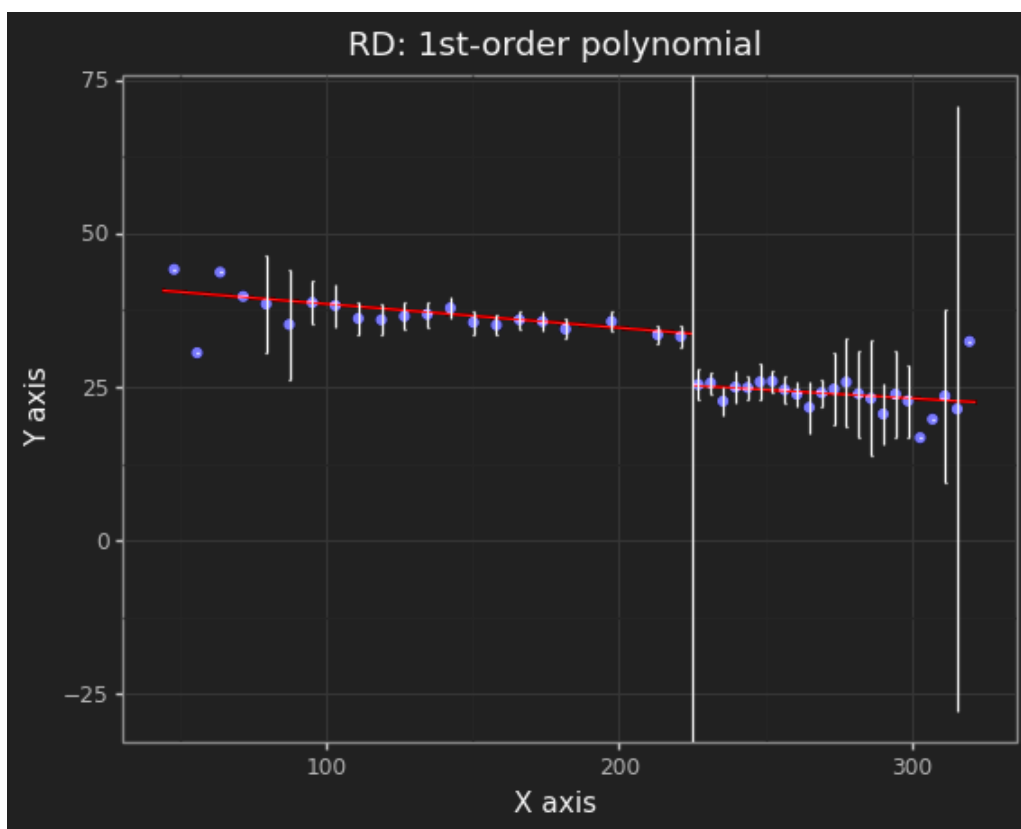
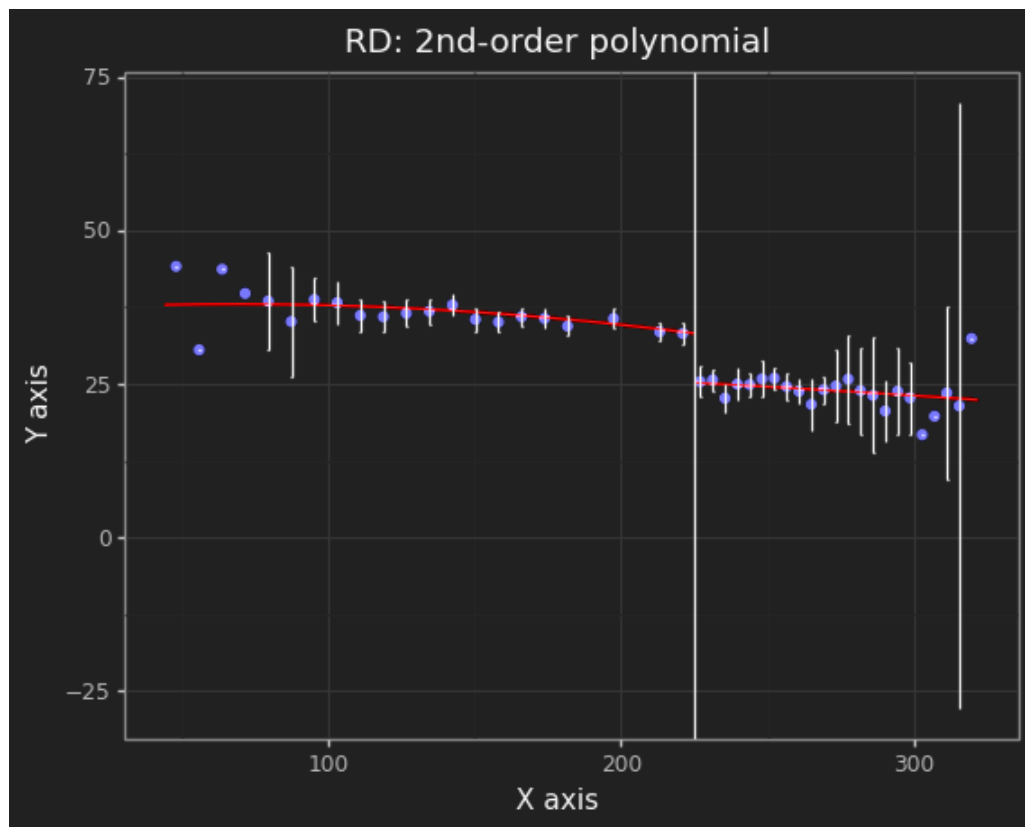### 1.3

Figure 2: The RD coefficient is -7.279.

1.4

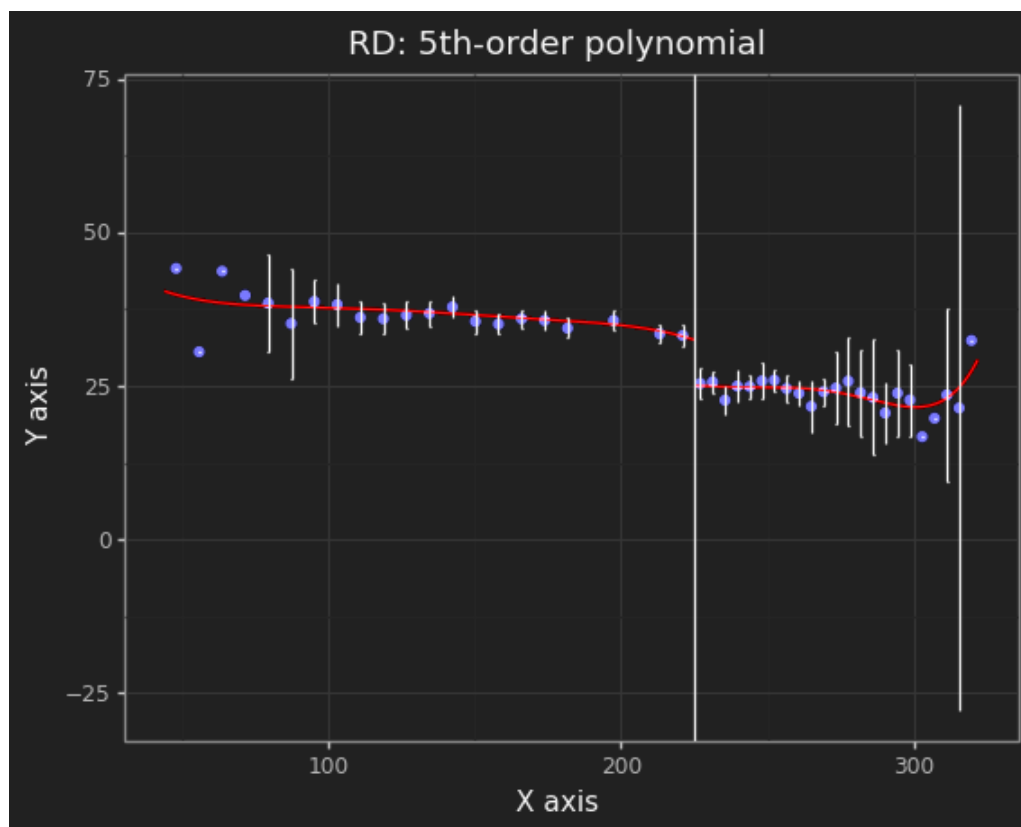Figure 3: The RD coefficient is -7.008.

1.5

Figure 4: The RD coefficient is -11.221.

1.6

- In the 2SLS specification, the average treatment effect is 135.92 (similar in magnitude to estimates from the previous homework) I used a 2nd order polynomial to provide some functional flexibility while resisting the overfittedness common in higher order specifications.

2 Stata

2.1

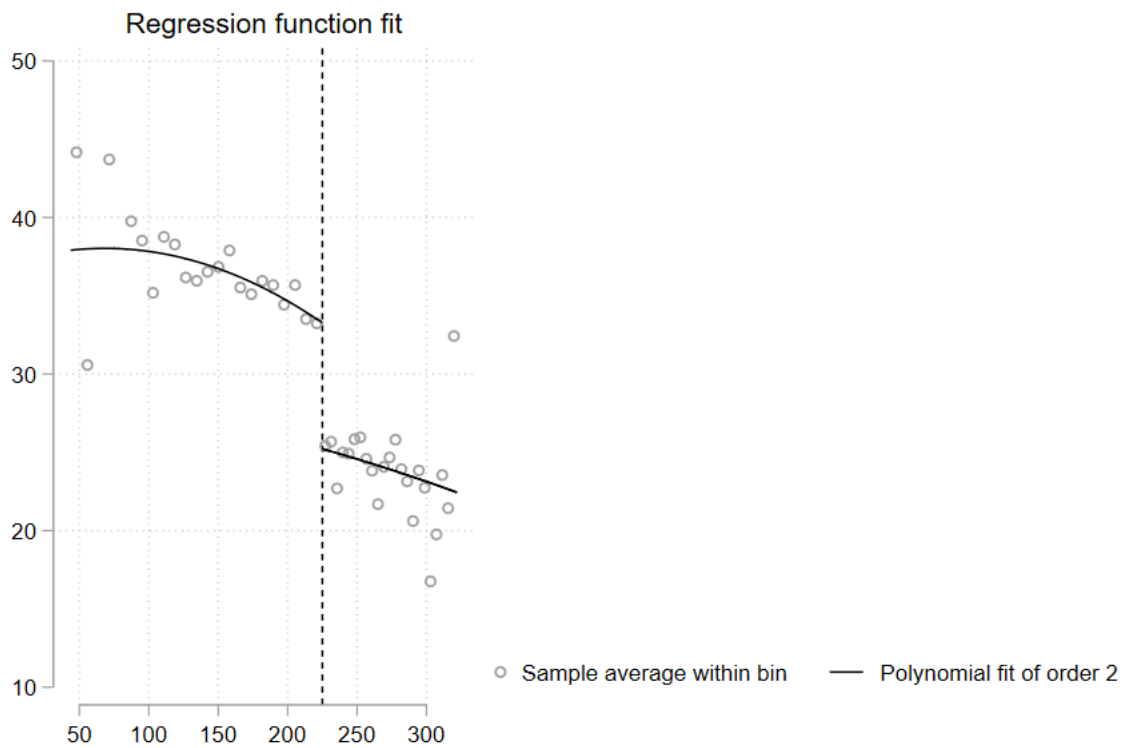- The average treatment effect from the second stage results is 135.41.

Figure 5: Results from rdrobust with 2nd order polynomial.

2.2

- My intuition says this is not a valid instrument, since the first stage was a nonlinear estimation.