ECON7103 HW7

Sedat Ors

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1 Python

1. I think this is sharp RD. because the change in cutoff is dramatic and clear.

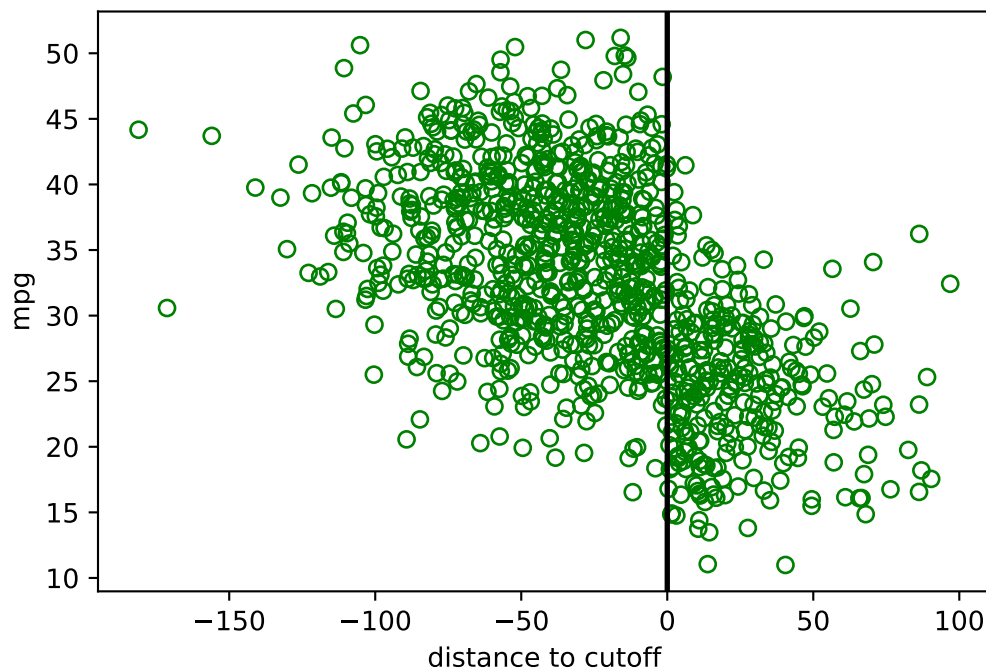2. According to the graph in Figure 1 below, there seems discontinuity after and below cutoff.

Figure 1: Scatterplot of mpg

3. See Figure 2. According to the result, the treatment leads reduction around 8.27 fuel efficiency per gallon at the cutoff.

4. See Figure 3. According to the result, at cut off, fuel efficiency is decreased by 8.05.

5. See Figure 4 Accordint to the result, at cut off, fuel efficiency is decreased by 7.44.

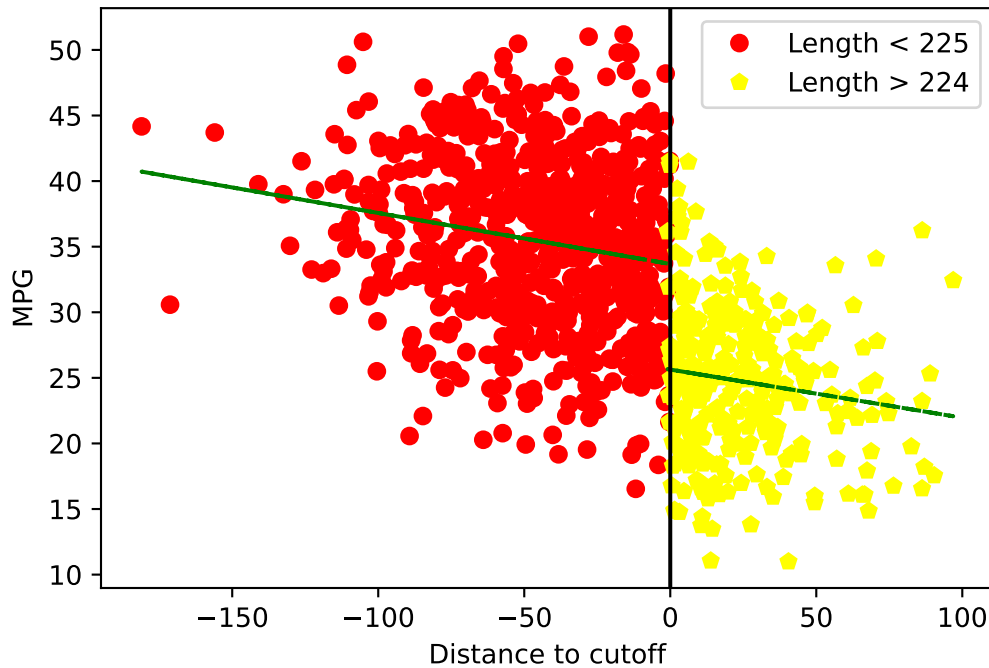6. According to the Table 1 below, the price is increases around 158$, if level of mpg rise 1 unit.

Figure 2: Cutoff

2 Stata

1. - a) According to Table 2 below, the average treatment effect is 162$.
    - b) See Figure 5

2. The IV should be correlated with the endogenous variable of interest. In other words, the IV should be able to explain some of the variations in the treatment variable and IV should not be correlated with the error term in the outcome equation.

    I think mpg is statistically significant and according to the FSLS, the F value is bigger than 10. There is no endogeneity after 2SLS, we can say that this rd design is a good instrument.
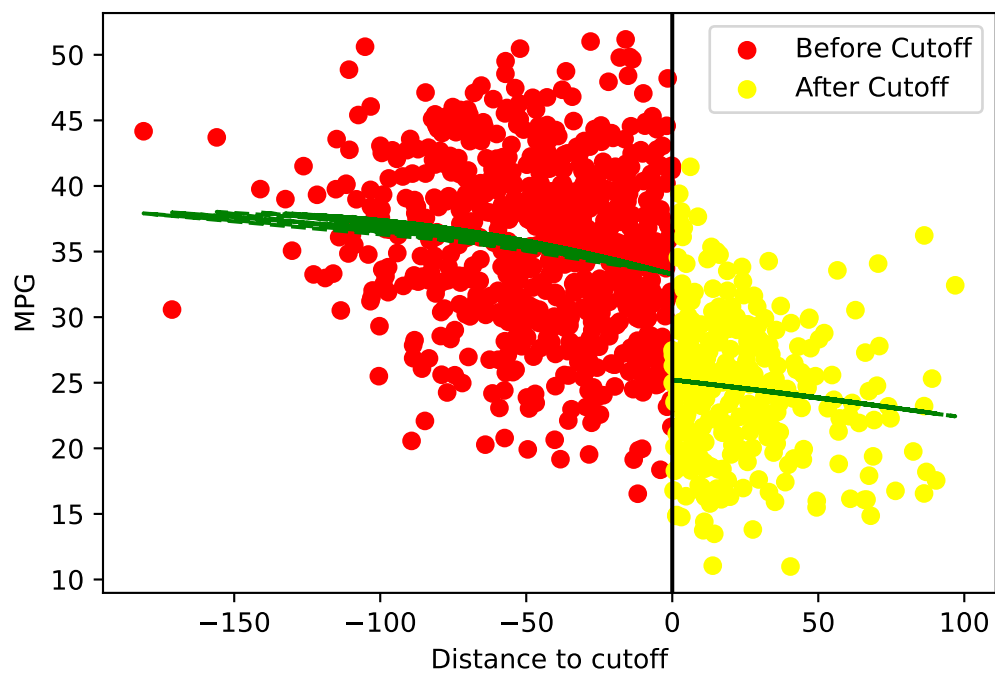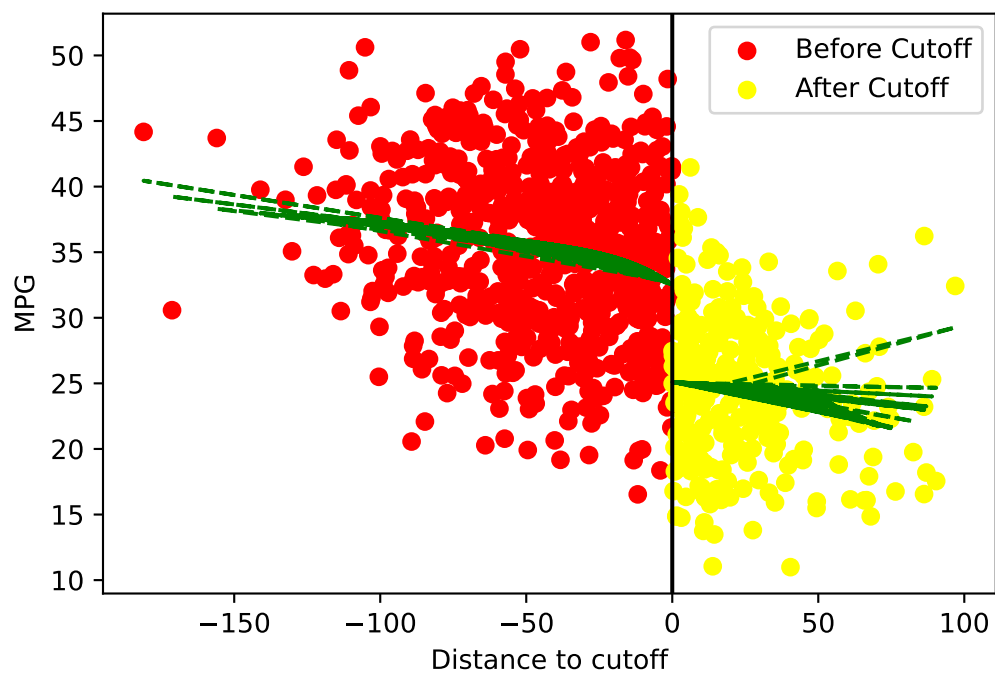
Figure 3: Cutoff - Second-order polynomial

Figure 4:

	Q6
Question 6	
Sedan	-4747.32
	(-5442.87, -4051.77)
MPG	158.78
	(101.31, 216.24)
Constant	17392.94
	(15741.11, 19044.78)
Observations	
1000	

Table 1:

VARIABLES	(1) 2SLS Results: 2sls Estimator
mpg	162.4***
	(35.14)
car	-4,778***
	(395.0)
Constant	17,290***
	(1,009)
Observations	1,000
R-squared	0.092

Robust standard errors in parentheses
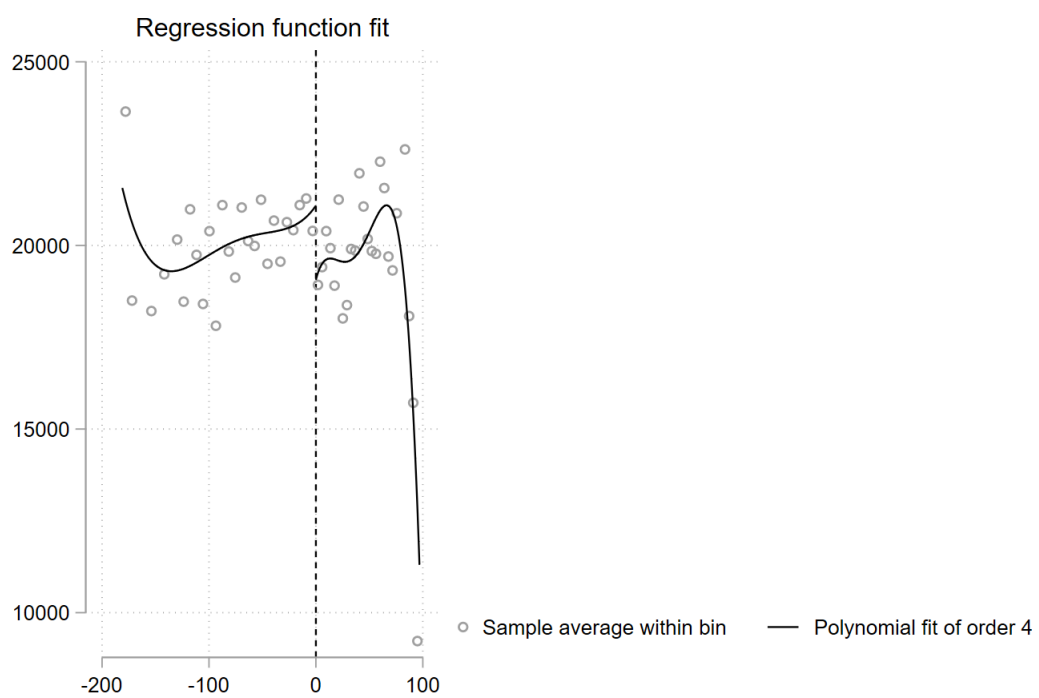*** p<0.01, ** p<0.05, * p<0.1

Table 2:

Figure 5: