

## **Replication 2: Abadie(2005)**

### **1. Calculate a propensity score**

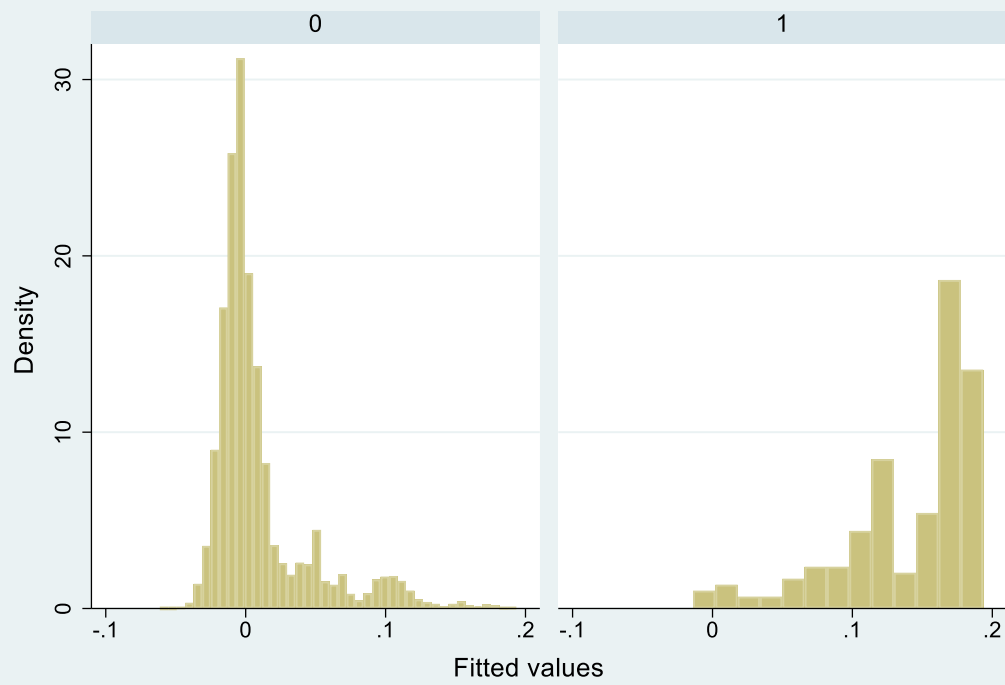
In quadratic OLS model, the min and max values of the propensity score for the treatment group is .1088226 and .1934806. And for the control group is .104215 and .1934767.

In quadratic Logit model, the min and max values of the propensity score for the treatment group is .1065083 and .8996394. And for the control group is .1006338 and .8915.

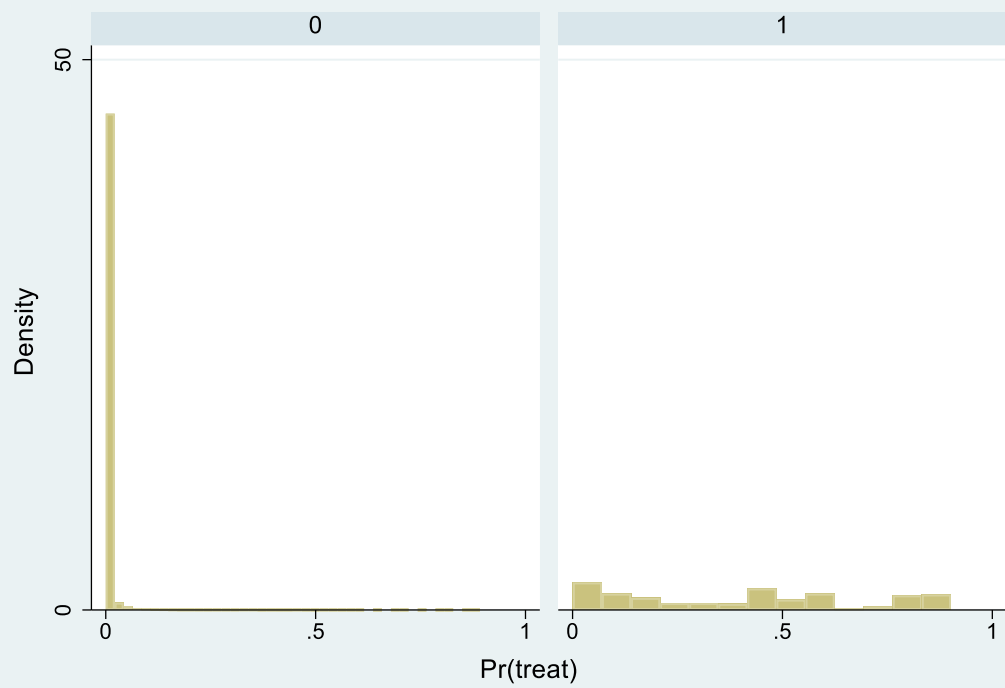
In cubic OLS model, the min and max values of the propensity score for the treatment group is .1131771 and .20838. And for the control group is .1057099 and .2044633.

In cubic Logit model, the min and max values of the propensity score for the treatment group is .1062628 and .8985353. And for the control group is .101312 and .8770798.

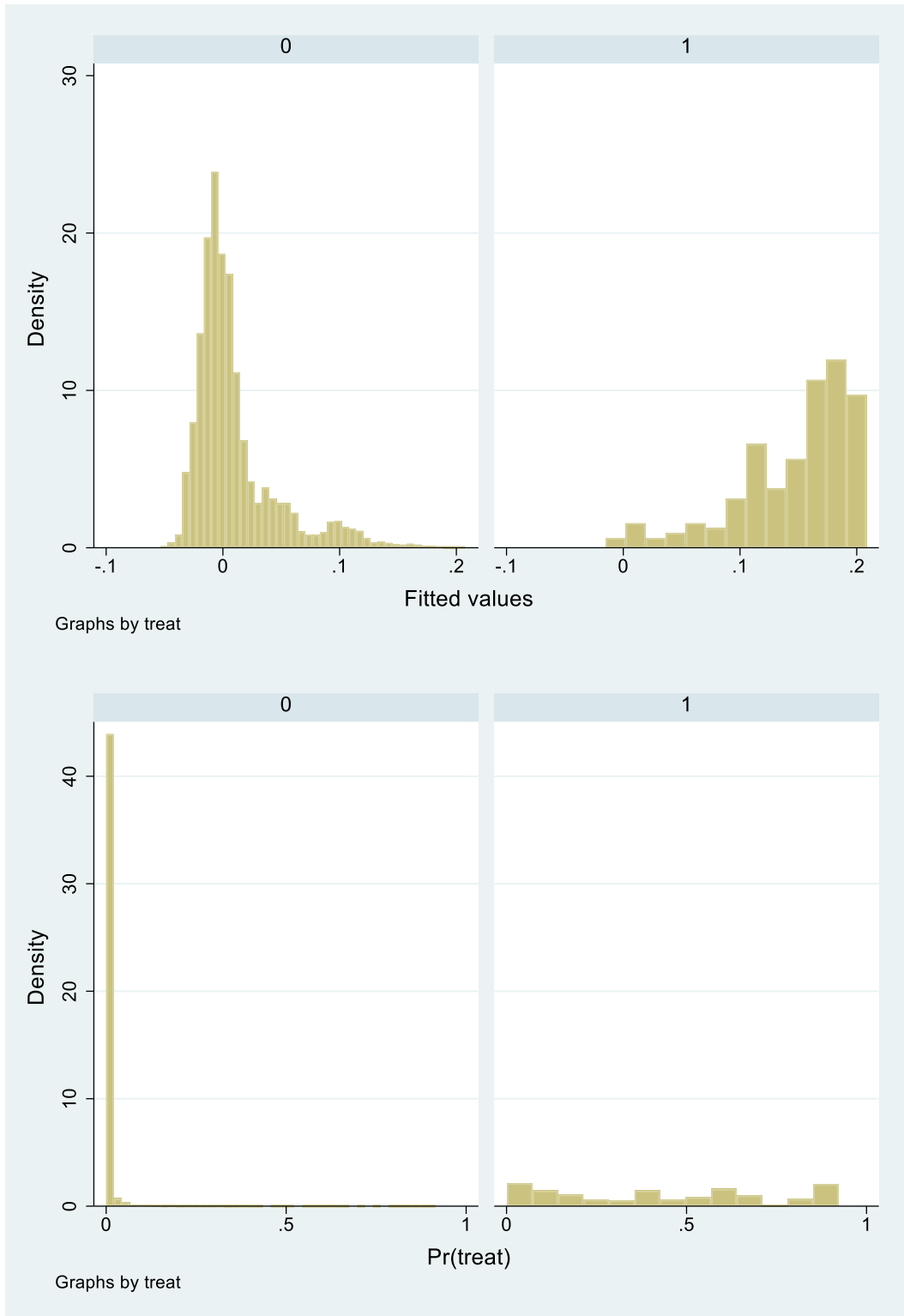
**Create a histogram showing the distribution of the propensity score for the treatment and control group:**



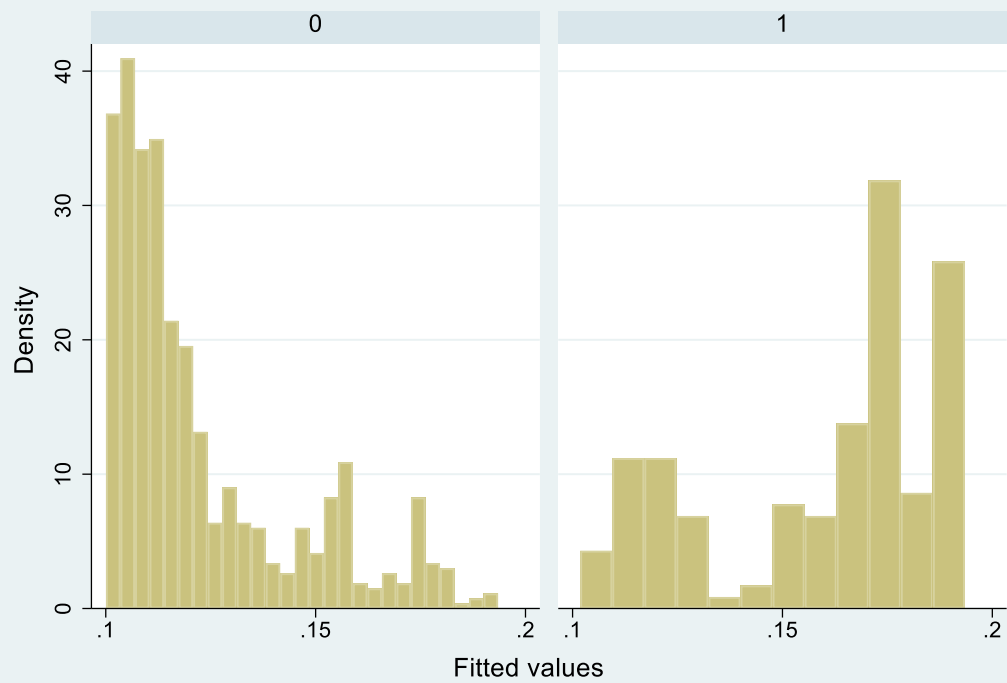
Graphs by treat



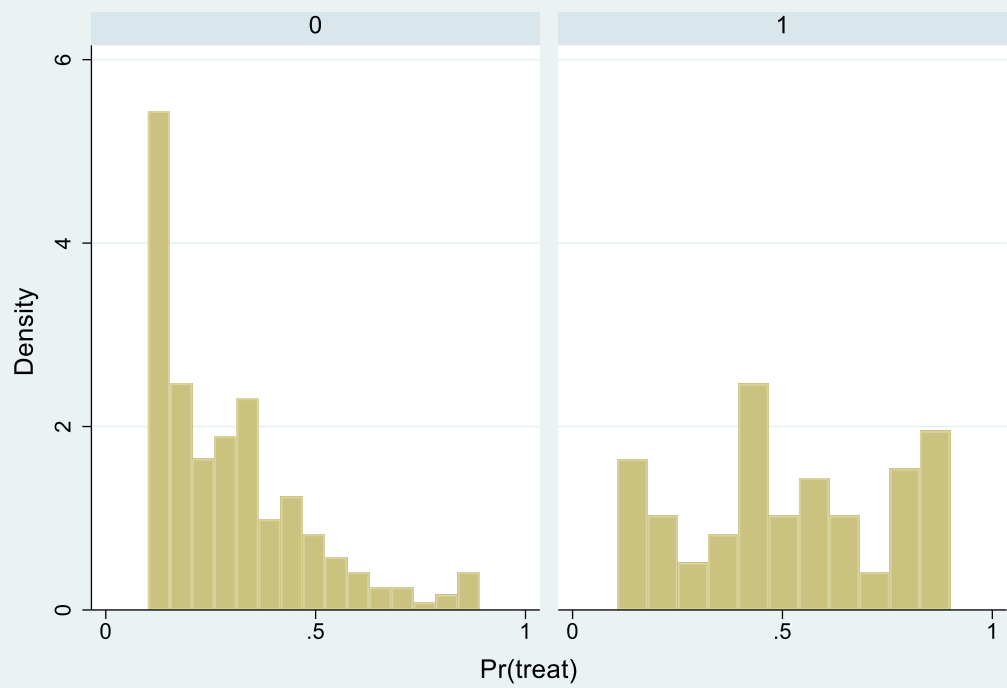
Graphs by treat



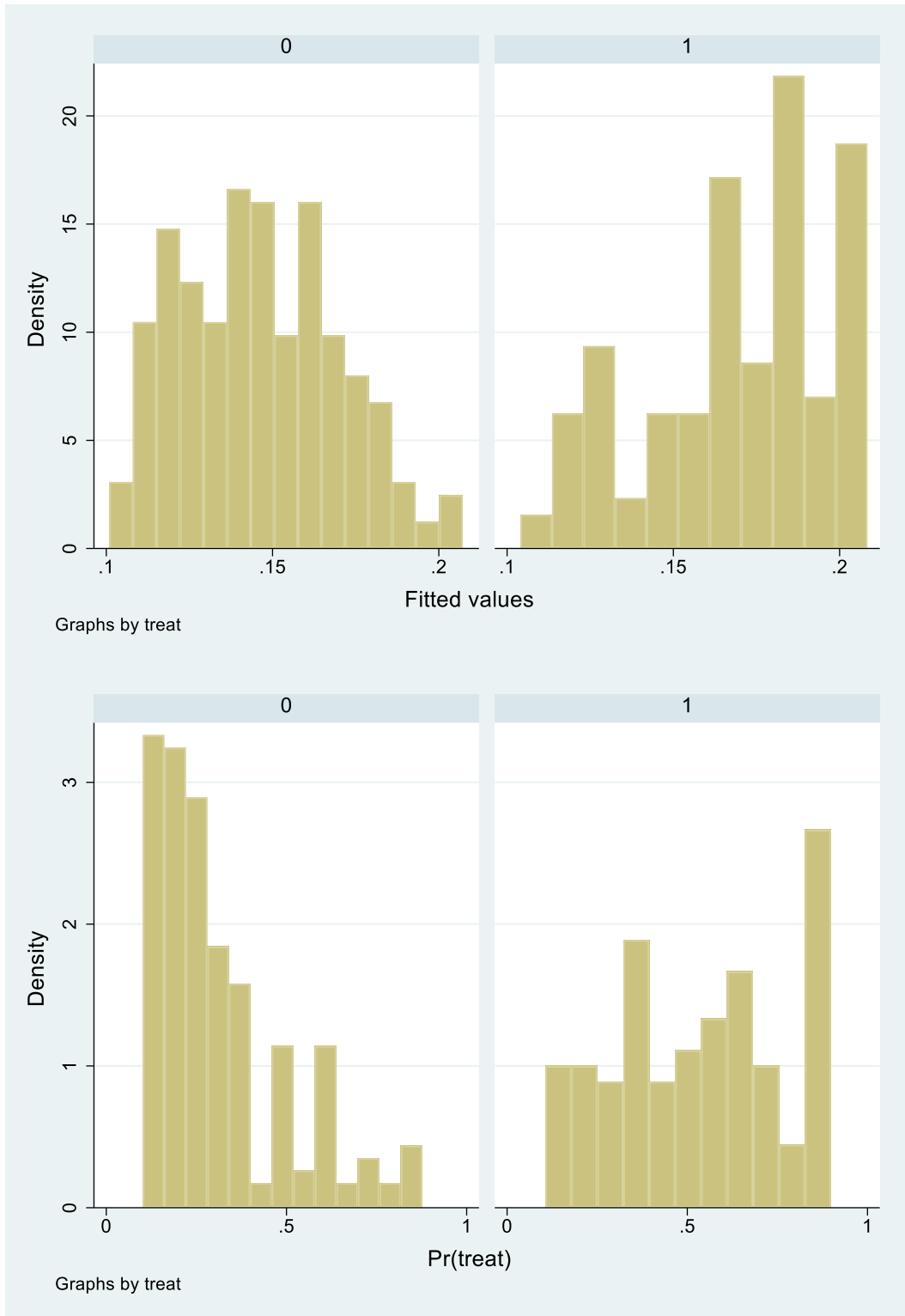
**Drop all units whose propensity scores are less than 0.1 and more than 0.9 and create a histogram:**



Graphs by treat



Graphs by treat



## 2. Calculate a before and after first difference for each unit.

```
. su diff
```

Variable	Obs	Mean	Std. Dev.	Min	Max
-----+-----					
diff	316	3918.225	6965.021	-6871.856	59023.85

### 3. Construct a weighted difference-in-differences

I used four condition in question 1 to separately calculate the point estimate. In quadratic OLS model, the mean point estimate is 4406.935; and for logit model is 2029.69. In cubic OLS model, the mean point estimate is 4398.901; and for logit model is 2132.094. Compared to \$1806 or \$2006, the quadratic and cubic Logit model are much more closer.

```
. gen PE_3_Logit = (diff / mean_treat) * (treat - pscore3_Logit) / (1 - pscore3_Logit)
```

```
. su PE_2_OLS PE_2_Logit PE_3_OLS PE_3_Logit
```

Variable	Obs	Mean	Std. Dev.	Min	Max
-----+-----					
PE_2_OLS	316	4406.935	15300.13	-17372.05	149212.3
PE_2_Logit	316	2029.69	20733.07	-201144.4	149212.3
PE_3_OLS	316	4398.901	15308.33	-17372.05	149212.3
PE_3_Logit	316	2132.094	19510.29	-146358.2	149212.3