

Assignment 4

Name: Víctor Andrés Balcárcel Guzmán

Universidad del Rosario

1.- Github repository “RDD”

<https://github.com/1988victorbalcarcel/RDD>

2. Question of interest. Causal effect of BAC above 0.08 and 0.15 in recidivism within 4 years after the BAC test. Study on people above the legal drinking age.

ID strategy. Regression Discontinuity design exploiting two thresholds 0.08 and 0.15. The main results are based on a local-linear regression discontinuity design with a rectangular kernel.

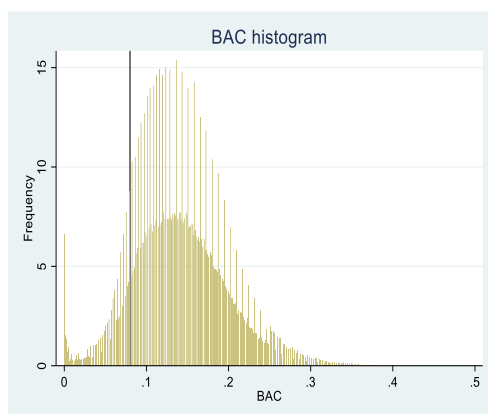
Data. Administrative records on 512,964 DUI BAC tests in the state of Washington from 1995 to 2011.

3.- Generation of a dummy variable

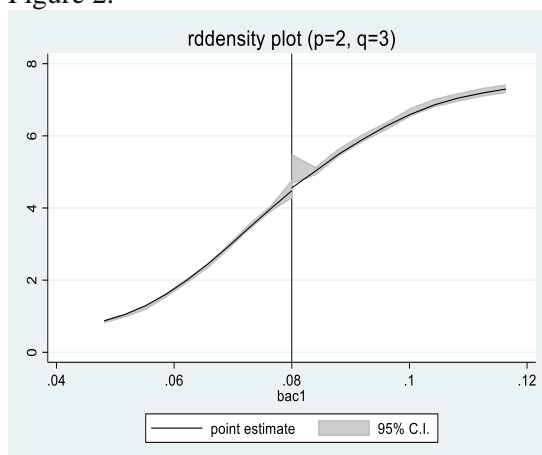
Variable generated and named DUI, as shown in do.file

4.- Evidence of Manipulation

At first sight, it appears not to be evidence of manipulation around the cutoff, as showing in Figure 1.



However, the Cataneo et.al test shows that there is manipulation around the cutoff as shown in Figure 2.



5.- Check for covariate balance

As shown in the table 1, the covariates are balanced at the cutoff

VARIABLES	(1) male	(2) white	(3) aged	(4) acc
DUI	-0.0184 (0.0198)	0.00445 (0.0175)	-6.224*** (0.586)	-0.154*** (0.0153)
bac1_c	-0.210 (0.240)	0.0788 (0.214)	-69.16*** (7.220)	-1.096*** (0.186)
interactionBAC_DUI	0.307 (0.263)	0.0156 (0.234)	76.05*** (7.844)	1.888*** (0.203)
Constant	0.784*** (0.00463)	0.846*** (0.00409)	33.92*** (0.135)	0.0834*** (0.00330)
Observations	89,967	89,967	89,967	89,967
R-squared	0.000	0.000	0.002	0.002

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

7.- Recidivism (recid) as the outcome

Panel A. Bandwidth 0.03-0.13.

Table 2. Bandwidth 0.03-0.13

VARIABLES	(1) recidivism	(2) recidivism	(3) recidivism
DUI	-0.0273*** (0.00403)	-0.0591*** (0.0152)	-0.0231*** (0.00451)
bac1	0.321*** (0.0748)	-0.0429 (0.187)	-0.543 (0.408)
interactionBAC_DUI		0.438** (0.204)	
male	0.0332*** (0.00233)	0.0332*** (0.00233)	0.0332*** (0.00233)
white	0.0162*** (0.00280)	0.0162*** (0.00280)	0.0162*** (0.00280)
aged	-0.000847*** (8.49e-05)	-0.000854*** (8.50e-05)	-0.000854*** (8.50e-05)
acc	0.00444 (0.00345)	0.00421 (0.00345)	0.00421 (0.00345)
interactionBAC_DUI_sq			4.391** (2.035)
Constant	0.0853*** (0.00672)	0.109*** (0.0131)	0.123*** (0.0186)
Observations	89,967	89,967	89,967
R-squared	0.004	0.004	0.004

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

Panel B. Bandwidth 0.055-0.10

Table 3. Bandwidth 0.055-0.105

VARIABLES	(1) recidivism	(2) recidivism	(3) recidivism
DUI	-0.0219*** (0.00558)	-0.0643* (0.0350)	-0.0201*** (0.00586)
bac1	0.188 (0.201)	-0.196 (0.383)	-1.651 (1.551)
interactionBAC_DUI		0.547 (0.449)	
male	0.0357*** (0.00317)	0.0357*** (0.00317)	0.0357*** (0.00317)
white	0.0176*** (0.00381)	0.0176*** (0.00381)	0.0176*** (0.00381)
aged	-0.000756*** (0.000115)	-0.000758*** (0.000115)	-0.000758*** (0.000115)
acc	0.00431 (0.00497)	0.00422 (0.00497)	0.00422 (0.00497)
interactionBAC_DUI_sq			10.68 (8.881)
Constant	0.0862*** (0.0154)	0.113*** (0.0278)	0.162** (0.0658)
Observations	46,957	46,957	46,957
R-squared	0.004	0.004	0.004

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