The paper by Angrist and Lavy (1999) on 'Maimonides rule' pushed economists interest/revival (originally Don Campbell in psychology) of regression discontinuity designs. The goal is to estimate the 'causal' effect of class size on reading achievement of elementary school children in Israel. Maimonides rule is from the talmud and says class sizes above 40 must be broken into 2 smaller class. So a class of size 40 would be left intact, but a class of size 41 would be divided into two classes: sizes 20 and 21. So assignment into a class size reduction mechanism is a function of original class size, with cutoff at 40. [note in the real life data there are discrepancies and deviations from the rule, but that didn't phase the economists much, and for our purposes we will treat these data as following the design intent].

I obtained the Angrist dataset from the UCLA repository for the "Methods Matter" book: http://www.ats.ucla.edu/stat/examples/methods_matter/ (but beware most of the links are broken, but with some modifications I could get the data). I formed a dataset named 'ang2' which contained classes of original size 36 through 45 (classes above size 40 are broken up). Dataset ang2 contains 180 classrooms (rows).
The 'read' variable is the class mean reading score (analysis is done at the classroom level).
I formed the variable 'treat' in ang2 by

```
> ang2$treat = ang2$size > 40
```

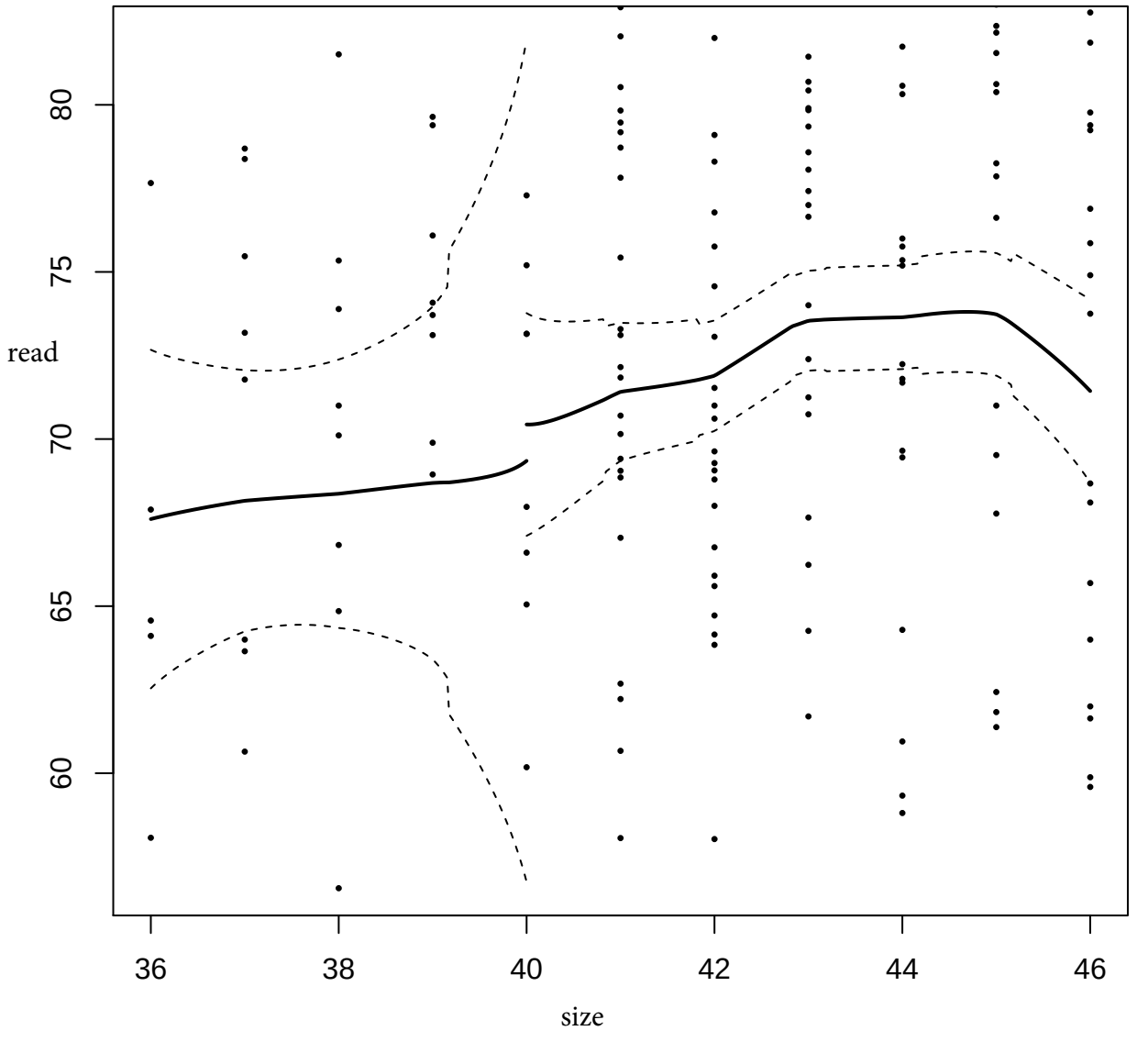
Analysis

```
> attach(ang2)
> angreg = lm(read ~ treat + size)
> summary(angreg)
Call:  lm(formula = read ~ treat + size)

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  61.6978    16.6373   3.708 0.000279 ***
treatTRUE     3.8472     2.8112   1.368 0.172894
size          0.1707     0.4360   0.391 0.695923
---
Residual standard error: 9.674 on 177 degrees of freedom
Multiple R-squared:  0.04579,   Adjusted R-squared:  0.035
F-statistic: 4.246 on 2 and 177 DF,  p-value: 0.0158

> library(rdd)
> summary(RDestimate(read ~ size, cutpoint = 40, data = ang2))
Call:  RDestimate(formula = read ~ size, data = ang2, cutpoint = 40)
Type:  sharp

Estimates:
          Bandwidth  Observations  Estimate  Std. Error  z value  Pr(>|z|)
LATE      3.175      115            1.0893   7.105        0.1533  0.8782
Half-BW   1.587       47           -0.9415   4.532       -0.2078  0.8354
Double-BW 6.350      180            1.0718   4.926        0.2176  0.8278
---
> plot(RDestimate(read ~ size, cutpoint = 40, data = ang2)) #plot attached
```


read
60
65
70
75
80
36
38
40
42
44
46
size