

# Causal Inference6

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## Regression Discontinuity Designs

### Sharp RD

This is a sharp RD because the probability of treatment switches from zero to one at the threshold.

- Basic Setup

Suppose the treatment is a deterministic and discontinuous function of observed covariate  $X_i$  such that

$$D_i = 1\{X_i > c\}$$

where  $X_i$  is called the running variable or forcing variable.  $c$  is determined by policy or rule. An individual is untreated if  $D = 0$  and is treated if  $D = 1$ .

- Identification

### Fuzzy RD