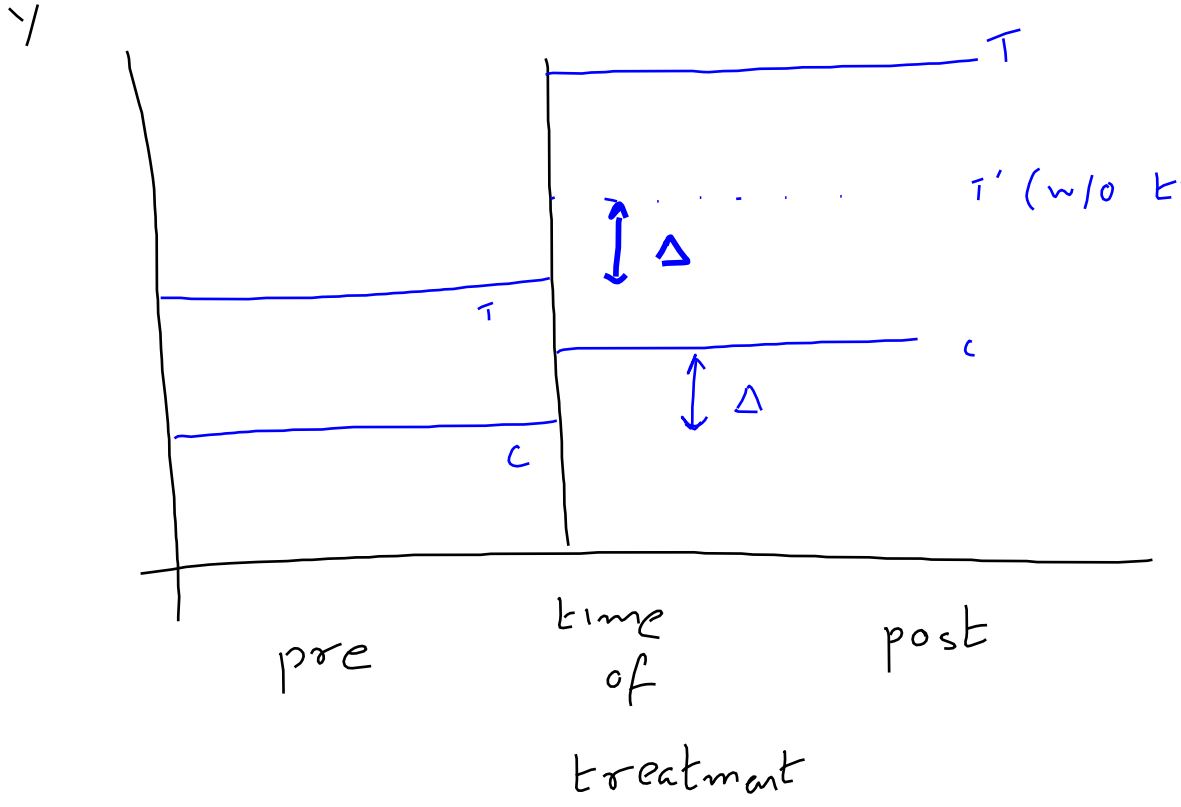
Difference in differences (DiD)

2 groups → treated (T) and control (C)

2 pds → pre-treatment & post-treatment



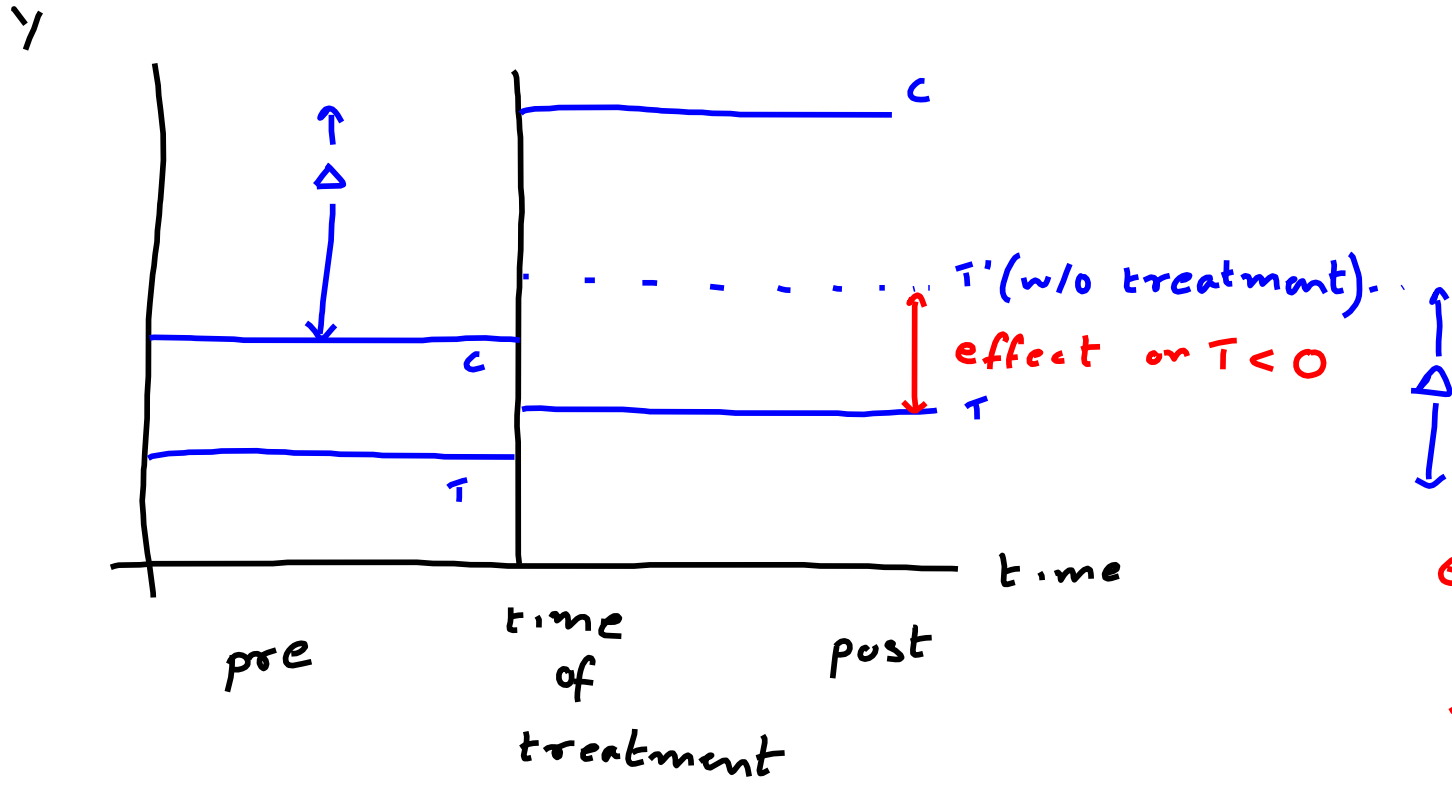
effect on $\bar{T}$ > 0

DID diff in $\bar{T}$ − diff in C

e.g. Y → profits

$\bar{T}$ firms with employee training

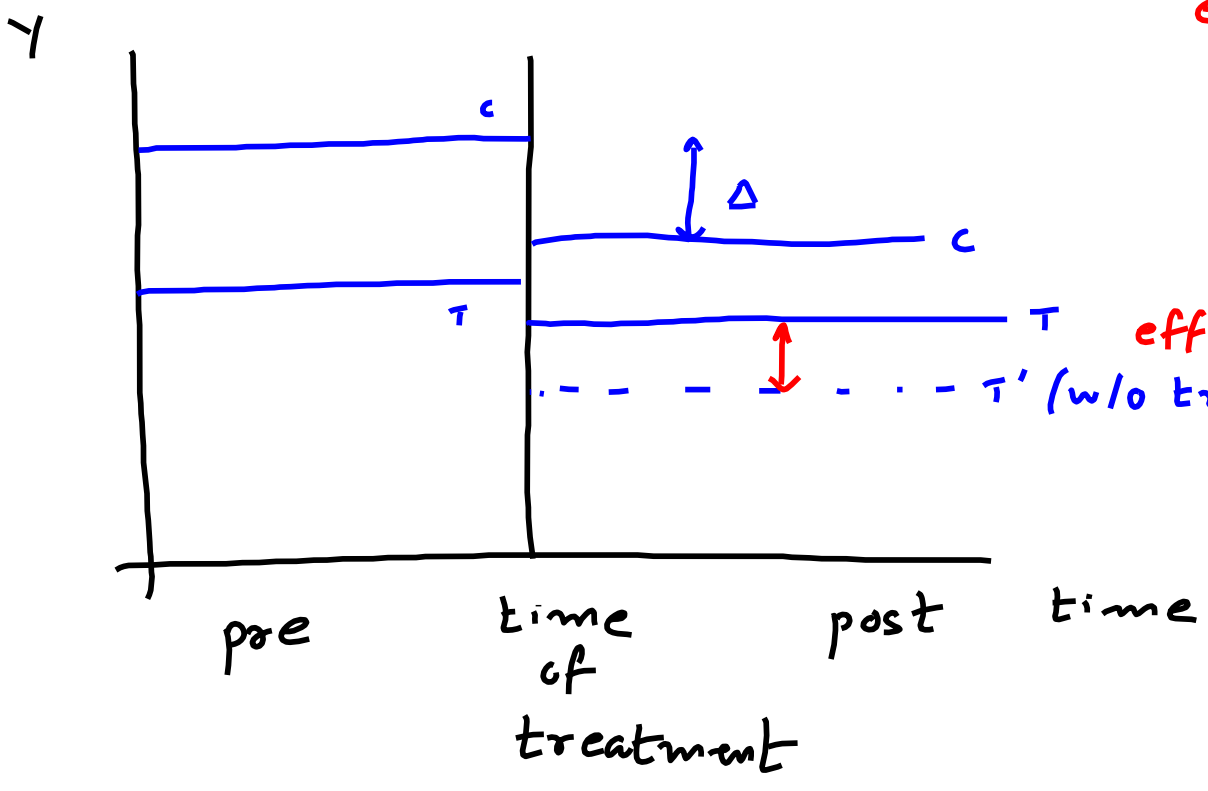
C firms w/o



e g Y → property value

T houses near incinerator

C houses far from



e.g. Y employment (fast food)

T min wage ↑ (NJ)

effect or $\bar{T} > 0$

C min wage same (PA)

DD = diff in T

– " " C

DID estimates often obtained from linear regression models

$$y = \beta_0 + \delta_0 \, post + \beta_1 \, treat + \delta_1 \, post \times treat + u$$

dummy post = 1 for post treatment pd & 0 o w

dummy treat = 1 for T 0 for C

	Pre	Post	Post − Pre
C	β_0	$\beta_0 + \delta_0$	δ_0
T	$\beta_0 + \beta_1$	$\beta_0 + \delta_0 + \beta_1 + \delta_1$	$\delta_0 + \delta_1$
T − C	β_1	$\beta_1 + \delta_1$	δ_1