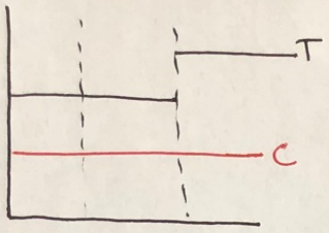
Created by Chloe N. East April 12, 2022

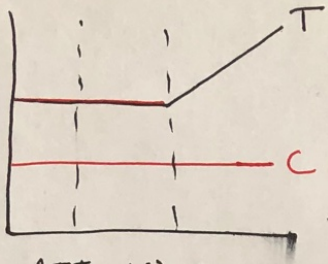
Basic DD

① constant T effects



$ATT_k(t) = ATT_k \ \forall t$
$= ATT$

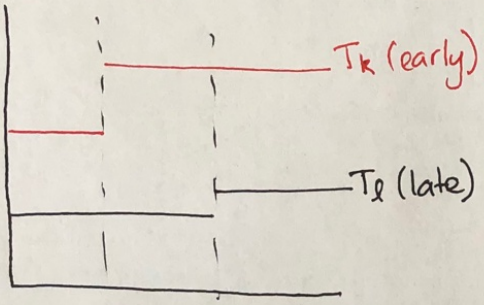
② dynamic T effects



$ATT_k(t)$ Δs over t and estimate is avg of ATT_k over t

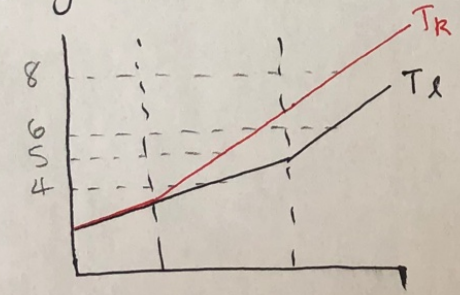
Staggered T DD

① constant T effects



if // trends VWCT=0
& and ΔATT=0
so β_{TWFE} = VWATT
variance-weighted avg of ATT_ks (constant over t)

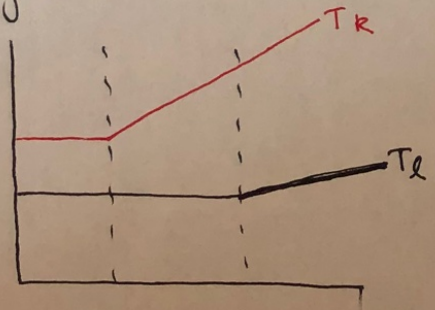
② dynamic T effects identical across units (Meer and West 2013)



(6-4) - (8-5)
VWATT ΔATT

even if VWCT=0 ΔATT≠0
this bias only present ~~here~~ in a single-coefficient specification, not in event study, but see Borusyak and Jaravel (2017) for other issues with event study if no never-treated group

③ dynamic T effects differ across units



again ΔATT≠0 always and since T effects dont evolve the same way across units, so even if "line up" event time, the Δs over time diff for k as for ℓ and will bias results

if bias bad enough switch to other method like stacked DD (Deshpande and Li (2017)) or Callaway and Sant'Anna (2021)