**What happens when we lose no anticipation?**

* Assume that we have an untreated comparison group

Step 1: write down the 2x2

2x2 = { E[Y|D=1,Post] – E[Y|D=1,t-2] } – { E[Y|D=0, Post] – E[Y|D=0, t-2] }

Step 2: replace Y with Y(1) or Y(0) depending on if treated.

2x2 = { E[Y(1)|D=1,Post] – E[Y(1)|D=1,t-2] } – { E[Y(0)|D=0, Post] – E[Y(0)|D=0, t-2] }

Step 3: Add in zeroes until you can see parallel trends and the ATT, where parallel trends is expressed as “four averages and three subtractions” of Y(0).

2x2 = { E[Y(1)|D=1,Post] – E[Y(0)|D=1, Post] <- ATT

+{ E[Y(0)|D=1,Post] – E[Y(1)|D=1,Pre] } – { E[Y(0)|D=0, Post] – E[Y(0)|D=0, Pre] } <- this is not PT

We have to add in another zero until we get PT and the one quantity we are missing is E[Y(0)|D=1, Pre]

2x2 = { E[Y(1)|D=1,Post] – E[Y(0)|D=1, Post]

+ { E[Y(0)|D=1, Post] - E[Y(0)|D=1, t-2]}} – { E[Y(0)|D=0, Post] – E[Y(0)|D=0, t-2] }