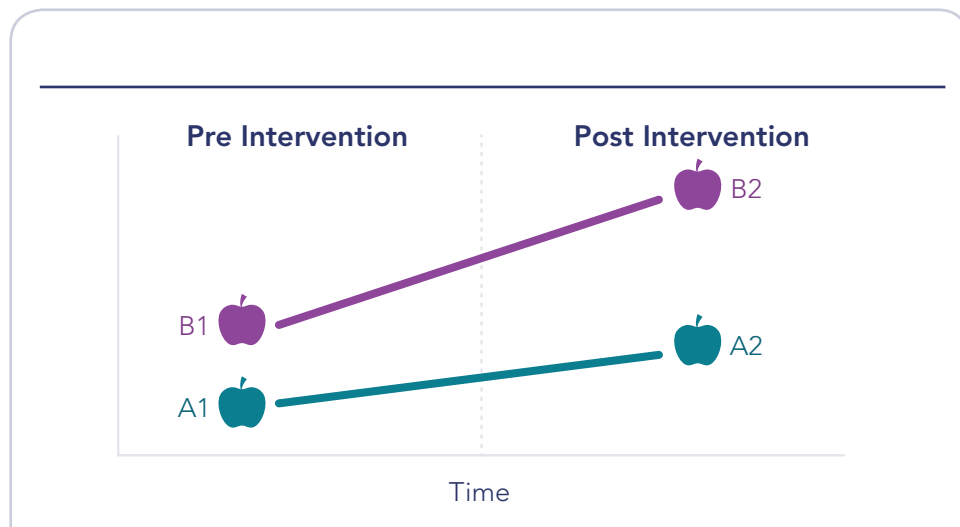


Difference-in-Differences Design

DiD estimates program impact by comparing the difference in outcomes between the intervention and comparison groups before and after the intervention group experienced the intervention.

DiD Approach to Examining TIF Impact

Low-performing schools participating in TIF are compared to schools experiencing similar trends. Two differences are compared: the difference in outcomes after vs. before schools are exposed to TIF ($B2-B1$) and the difference after vs. before in outcomes of schools not exposed to TIF ($A2-A1$). If TIF is associated with positive changes, then the outcomes following implementation will improve to a greater extent in the intervention group.



Challenge

Providing evidence that a TIF intervention had an effect on an outcome of interest when the intervention was not assigned at random.

Question

How does TIF affect student outcomes in low-performing schools?

Requirement

DiD uses panel/longitudinal data to measure the differences between the group receiving the intervention and the group not receiving the intervention, before and after the intervention.

Solution

DiD design can estimate the part of the change in outcomes due to the intervention by comparing the intervention group's outcomes to outcomes of a group that was experiencing similar trends but not the intervention.

Analysis

Changes in outcomes before and after the intervention are compared between the group receiving the intervention and a comparison group. The impact of the intervention is estimated by the difference in the changes, $(B2-B1) - (A2-A1)$.

Result

By comparing changes in outcomes, DiD can provide estimates of program impact without requiring a comparison group that is completely equivalent.