

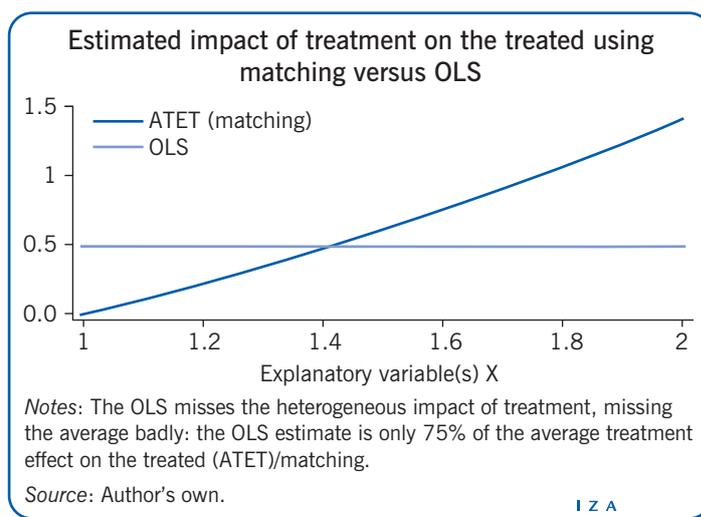
Matching as a regression estimator

Matching avoids making assumptions about the functional form of the regression equation, making analysis more reliable

Keywords: matching, ordinary least squares (OLS), functional form, regression

ELEVATOR PITCH

“Matching” is a statistical technique used to evaluate the effect of a treatment by comparing the treated and non-treated units in an observational study. Matching provides an alternative to older estimation methods, such as ordinary least squares (OLS), which involves strong assumptions that are usually without much justification from economic theory. While the use of simple OLS models may have been appropriate in the early days of computing during the 1970s and 1980s, the remarkable increase in computing power since then has made other methods, in particular matching, very easy to implement.



KEY FINDINGS

Pros

- ⊕ Matching allows for the estimation of causal effects without relying on such strong assumptions, which makes its results more reliable.
- ⊕ Matching allows the researcher to balance two problems that plague statistical estimation: bias and variance.
- ⊕ The potential lack of similar individuals in treatment and comparison groups is highlighted by matching.

Cons

- ⊖ Matching can be computationally intensive.
- ⊖ Both matching and OLS still rely on strong assumptions about the exogeneity of the treatment, which makes results less reliable.
- ⊖ Matching requires decisions at several steps of the process that may bias the estimates and limit their precision.

AUTHOR'S MAIN MESSAGE

Matching is a powerful but often misunderstood statistical technique. It allows the researcher to program impacts (in a similar way to regression analysis) but does so without requiring researchers to make assumptions about the exact functional form. This can avoid the potential for some very serious errors occurring regarding the predicted impacts of programs—which makes matching an important component of the statistical toolbox for policymakers.