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Learning in Games and the Interpretation of Natural Experiments

INTERVIENE

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ABSTRACT

We examine natural experiments where the variable of interest is the effort levels of the agents, the treatment and control correspond to success or failure, and there is unobserved heterogeneity in the agents' efforts. We show that in such experiments the treatment effect estimated by standard methods such as regression discontinuity analysis or difference-in-difference may contain a transient learning effect that is entangled with the structural long-term effect of the treatment. This learning effect occurs when agents are uncertain of the effectiveness of their effort: their success or failure signals agents how much their effort matters to success, and consequently changes the amount of effort they provide after treatment. We examine which direction the effect goes and when it is likely to be present. We illustrate this with applications taken from the literature, and show how under some circumstances the presence of learning can alter policy conclusions.