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Testing for Nonparametric Identification of Causal Effects in the Presence of a Quasi-Instrument

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Abstract:

The identification of average causal effects of a treatment in observational studies is typically based either on the unconfoundedness assumption or on the availability of an instrument. When available, instruments may also be used to test for the unconfoundedness assumption (exogeneity of the treatment). In this paper, we define variables which we call quasi-instruments because they allow us to test for the unconfoundedness assumption although they do not necessarily yield nonparametric identification of the average causal effect. A quasi-instrument is defined as an instrument except for that its relation to the treatment is allowed to be confounded by unobservables, thereby resulting in a wider range of potential applications. We propose a test for the unconfoundedness assumption based on a quasi-instrument, and give conditions under which the test has power. We perform a simulation study and apply the results to a case study where the interest lies in evaluating the effect of job practice on employment.

Text: See [Discussion Paper No. 6692](#)



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