



SUMMONS

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LUND UNIVERSITY

School of Economics and Management

Department of Statistics

SEMINAR

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Testing for nonparametric identification of causal effects in the presence of a quasi-instrument

The identification of the average causal effect of a treatment in an observational study is typically based either on the unconfoundedness assumption (exogeneity of the treatment) or on the availability of an instrument. When available, instruments may also be used to test for the unconfoundedness assumption. 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 loosely an instrument whose relation to the treatment is allowed to be confounded by unobservables. 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 an observational study of the effect of job practice on employment. Quasi-instrumental assumptions are weaker than instrumental assumptions, and the former should therefore be more often relevant in applications. Joint work with Per Johansson.

Welcome!