

Department of Decision Sciences

Statistics Seminar

Identification of causal effects with non-ignorable missing data using instrumental variables: theoretical and computational issues

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Thursday, 31 March 2011

12:30pm Room 3-E4-SR03 Via Röntgen 1 Milano

Abstract

The instrumental variables method has been widely adopted over the last two decades in identifying and estimating causal effects in econometrics. Typical examples are those wherein the template of a natural experiment with all-or-none compliance has been implemented in order to eliminate the bias arising from the self-selection of the units for treatment. In these cases, information is generally collected from surveys, wherein missing data is a common problem. However, the strand of literature dealing with missing data is typically restricted to the field of bio-statistics, where non-ignorable conditions for the missing data mechanism have been proposed for situations of missingness in the outcome, but not in the treatment or in the instrumental variable. There are various situations in econometrics, where data may not only be missing in the outcome, and where usual ignorability conditions for the missing data mechanism are considered to be so restrictive that simple integration of the likelihood function over the unobserved data may be misleading. In this study, I propose a set of conditions under which the non-ignorable missing data mechanism can be introduced. Its relative performance is assessed by simulations based on artificial samples.