

## SPECIFICATION TESTING IN NONPARAMETRIC INSTRUMENTAL VARIABLES ESTIMATION

In nonparametric instrumental variables estimation, the function being estimated is the solution to an integral equation. A solution may not exist if, for example, the instrument is not valid. This paper discusses the problem of testing the null hypothesis that a solution exists against the alternative that it does not. We give necessary and sufficient conditions for the existence of a solution and show that consistent testing of an unrestricted null hypothesis is not possible. The paper presents mild restrictions of the null hypothesis that make consistent testing possible, and it describes a consistent test for existence of a model satisfying the restrictions. The results of Monte Carlo experiments illustrate the numerical performance of the test.

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