

Publication: Abstract

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Paper: Including the Instruments in the Regression is the Hausman Test
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Abstract: The Hausman test evaluates the potential endogeneity of a regressor by examining an artificial regression that includes the residuals from a first-stage regression of the endogenous variable on the available instruments. We highlight a conceptually simpler way to compute the Hausman test statistic: include the instruments in the original regression. When the model with potentially endogenous variables is exactly identified, a test of statistical significance on the coefficients of the residuals in the artificial regression algebraically equals the test of statistical significance on the coefficients of the instruments included in the original regression. The test statistic equality holds across multiple classical tests, including robust or cluster-robust versions of the Wald test, the robust score test, and the likelihood ratio test. We then modify the original Hausman test to extend the result to the overidentified case. Adding the instruments to the original regression provides a simple method of computing the Hausman test.