

# Robust Tests of Model Incompleteness in the Presence of Nuisance Parameters\*

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## Abstract

In a number of discrete choice models, whether the model makes a unique prediction or not is tied to important features of the underlying model such as the interdependence of agents' preferences in models of social interaction or the endogeneity of treatment assignments. We provide a novel test of model incompleteness using a score-based statistic. Our test statistic remains computationally tractable even with a moderate number of nuisance parameters because they have to be estimated only in the restricted complete model. A Monte Carlo experiment shows the score test outperforms existing tests in terms of local power. An empirical application to a model of entry in the airline industry illustrates the computational feasibility of the method.

**Key Words:** Model incompleteness, Score tests, Subvector inference, Strategic interaction, Discrete Choice Models

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