

Departments of Economics and Mathematical Sciences  
The Johns Hopkins University

JOINT SEMINAR

Maxwell B. Stinchcombe  
Department of Economics  
University of Texas–Austin

March 27, 2003  
304 Whitehead Hall  
Refreshments: 3:30 p.m.  
Seminar: 4:00 p.m.

SOME GENERICITY ANALYSES IN NONPARAMETRIC STATISTICS

ABSTRACT

Many nonparametric estimators and tests are naturally set in infinite-dimensional contexts. Prevalence is the infinite-dimensional analogue of full Lebesgue measure, and shyness is the analogue of being a Lebesgue null set.

A prevalent set of prior distributions leads to wildly inconsistent Bayesian updating when independent and identically distributed observations happen in a class of infinite spaces that includes  $\mathbf{R}^n$  and  $\mathbf{N}$ .

For any rate of convergence, no matter how slow, only a shy set of target functions can be approximated by consistent nonparametric regression schemes in a class that includes series approximations, kernels and other locally weighted regressions, splines, and artificial neural networks.

When the instruments allow for the existence of an instrumental regression, the regression function only exists for a shy set of dependent variables. The instruments allow for existence in a counterintuitive dense set of cases; shyness is an open question.

A prevalent set of integrated conditional moment (ICM) specification tests are consistent. A dense subset of the finitely parametrized ICM test are consistent; prevalence is an open question.