

- **Title:** Testing for a General Class of Functional Inequalities
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- **Abstract:** This paper develops a general framework for testing functional inequalities that can be applied to many contexts in econometrics. The null hypothesis of interest is given by inequality restrictions for a set of nonparametric functions and the alternative hypothesis is the negation of the null hypothesis. Examples include testing inequalities for mean regression function, inference on intersection bounds, testing for conditional treatment effects and testing monotonicity of mean regression, conditional distribution and quantile regression functions. The test statistic is a one-sided version of L_p -type functionals of the nonparametric estimators. This paper suggests a bootstrap procedure that gives less conservative critical values than the test based on the least favorable case of the null hypothesis. This paper shows that the test has asymptotically correct size uniformly over a class of distributions that satisfy the null hypothesis and is consistent against all fixed alternatives and has non-trivial local power against some Pitman local alternatives. Some results from Monte Carlo simulations and an empirical application are presented.