GOODNESS OF FIT TESTS IN RANDOM COEFFICIENT REGRESSION MODELS

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Abstract. Random coefficient regressions have been applied in a wide range of fields, from biology to economics, and constitute a common frame for several important statistical models. A nonparametric approach to inference in random coefficient models was initiated by Beran and Hall. In this paper we introduce and study goodness of fit tests for the coefficient distributions; their asymptotic behavior under the null hypothesis is obtained. We also propose bootstrap resampling strategies to approach these distributions and prove their asymptotic validity using results by Giné and Zinn on bootstrap empirical processes. A simulation study illustrates the properties of these tests.

Key words and phrases: Empirical processes, goodness of fit, linear regression, random coefficient, Vapnik-Červonenkis classes.