

An Umbrella Test for First Order Misspecification

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Abstract

A simple test designed to detect a wide range of misspecifications is developed through an extension of the results derived by Ochshorn (1986). These results show that a variety of specification error tests can be classified as RESET type tests. The unifying element behind this classification is that each of these procedures can be implemented by testing for the significance of additional test variables in a linear regression model. These procedures are then distinguished by the choice of test variables necessary to implement them as RESET type tests. A number of specification error tests claim the ability to detect a wide range of misspecifications. However, Thursby (1989) carries out a Monte Carlo experiment which shows that these procedures do not generally perform well when faced with a variety of misspecifications. The purpose of this paper is to use the results obtained by Ochshorn (1986) to construct a test against general misspecification. This was accomplished by simultaneously augmenting the regression model with the selected test variables from various RESET type tests. By combining these test variables under such an "umbrella," the procedure proposed here is designed to inherit the positive aspects of the individual tests while at the same time avoiding their weaknesses. The power of this general procedure is exhibited through a replication of a Monte Carlo study undertaken by Thursby (1989). The results from this study show that the "umbrella" procedure developed here is superior to any of the specification error tests considered by Thursby.